Persian carpet manufacturing: value chains, governance, and embeddedness

Saeed Mohammadi
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A Persian rug (Kerman rug) sold in Sotheby's auction for 33,765,000 USD - NewYork, 2013. Source: Sotheby's auction webpage.

KEYWORDS

global value chain (GVC), global production network (GPN), governance, embeddedness, power relations, lead actors, Persian rug industry, handmade rugs.

ABSTRACT

The global value chain (GVC) and global production network (GPN) are the two main interdisciplinary approaches to evaluate the value–added activities among actors in the globally spread economy and are described as different linkages in a chain or network. The spatial organization of chains and networks is developed by direct, functional integration of geographical economies, including global, national, and regional economies. This integration has introduced specific types of coordination by multinational firms and global buyers with few production tasks via vertical linkage with manufacturers in less developed economies. These approaches highlight the value creation from the global economy and particularly through chain *governance* and network dynamics to coordinate the value-added activities of a multitude of economic actors. The key mechanism is the uneven power relations among actors where lead actors can coordinate the chain to determine which goods and services are to be supplied and how, when and where they will be produced. This research explores the way that the GVC approach can explain the coordination mechanisms within the Persian rug GVC and also the role of embeddedness when the GVC approach has some limitations in explaining the impact.

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STATEMENT OF ORIGINAL AUTHORSHIP

The work contained in this thesis has not been previously submitted to meet requirements for an award at this or any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made.

QUT Verified Signature

Saeed Mohammadi

20/10/2016

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Saeed Mohammadi

Chapter One

INTRODUCTION

1.1 Research problem and study background

There are a variety of theories regarding the dynamics of globalisation and its consequences for economic coordination. Two schools are particularly influential in increasing the understanding of how economic exchanges are coordinated (Dolan & Humphrey, 2004) in relationships between the main actors in specific locations (Coe et al., 2008a; Ernst, 2002). These two schools are comprised of socio-economic researchers and economic geographers (Bair, 2005).

The first camp comprises the efforts by sociologists to introduce the chain-like relationships and specifically to propose the global value chain (GVC) framework. This approach explores the global changes of production and commerce in the world economy (Bair, 2008; Fold, 2008). Dolan and Humphrey (2004) stated that: "Global value chain analysis is used to explain why these changes took place and how value chain coordination might continue to change" (p. 492). Also, Ponte (2009) argued that "the concept of GVC governance illustrates how lead firms achieve certain functional divisions of labour along a value chain" (p. 236). In other words, the GVC approach is a methodology for studying global economic governance (Gibbon et al., 2008; Ponte, 2009). The GVC framework developed from the global commodity chain (GCC) approach which has been rooted in the World-system theory by Hopkins and Wallerstein (1977) (Bair, 2005). The main aspect of this approach proposes five types of governance mechanism (market, modular, relational, captive, and hierarchical) through three determinant variables (complexity of transactions, codification, and capability of suppliers) (Gereffi et al., 2005).

The second camp consists of the contributions of economic geographers and, particularly, the Manchester School of Global Production Network (GPN) which emphasises network relationships between actors (Coe et al., 2008c; Henderson et al., 2002; Hess & Yeung, 2006). The focus on networks is on the "fundamental structural and relational nature of how production, distribution and consumption of goods and services are—indeed always have been—organized" (Coe, et al., 2008a, p. 272). The GPN framework has emerged to provide a broader structure than GCC for considering the economic development at various geographic scales vis-à-vis the GCC tradition. Both

camps represent the chain *governance* and network dynamics to *coordinate* the value-added activities of a multitude of economic actors (Neilson et al., 2014).

Despite the different theoretical traditions which underpin these approaches, the similarities in the content of these schools have increased in recent studies as "much of the discussion concerns market power and consequent rents due to firm-level expertise and skills in coordinating complex networks" (Levy, 2008, p. 951) and the recent efforts have made these approaches closer (Yeung & Coe, 2015). Scholars believe that "none of these [approaches] provides the necessary causal explanation of why and how economic development takes place in different regional and national economies" (Neilson, et al., 2014, p. 5).

However, the current efforts have tried to reinforce the theoretical aspects of these approaches (cf. Ponte & Sturgeon, 2014; Yeung & Coe, 2015). In addition, scholars believe that there is still an "ongoing tension within GVC/GPN studies" to generate the "broad-based critical analysis" (Neilson, et al., 2014, p. 6). As such, in recent years, scholars have addressed some major needs for the future studies such as reframing the existing approaches, making more dynamic theories, and contributing toward a decrease of the above tension (Fold, 2014; Neilson & Pritchard, 2009; Yeung & Coe, 2015).

This study aims to contribute to the GVC/GPN approach by investigating one major industry in Iran, the handmade rug industry, to explore the coordination mechanisms within it and find the reasons for the emergence of a variety of coordination mechanisms within the GVC.

By researching the relationships between the main actors within the value chain and through an analysis of coordination mechanisms, a contribution to understanding the regional and national economic development will be

provided. In order to conceptualise GVC governance mechanisms, the fivefold governance types in Gereffi's framework (Gereffi, et al., 2005) are explored and the theoretical analysis of the ideal types of governance are compared to the real world situation (Gibbon, 2008; Sturgeon, 2009). As a result, a variety of governance types, both those predicted theoretically and those encountered in the field are analysed.

Despite some recent efforts to make a comprehensive theory of GVC/GPN frameworks (cf. Ponte & Sturgeon, 2014; Yeung & Coe, 2015), the empirical research to explain the workings of Gereffi's GVC theory (Gereffi, et al., 2005) and 'a systematic and integrated way' for explaining the variation in GVC governance remains limited (Sturgeon, 2009; Yeung & Coe, 2015). Some major points from the literature provide a basis to explore the impact of different institutional contexts (Gereffi, et al., 2005; Sturgeon, 2009) and the role of local lead actors (Fold, 2014) in shaping the different governance types. In this vein, the notion of embeddedness from the GPN approach is applied to explain this gap. By exploring the role of embeddedness, the main issue for less developed countries is how local lead firms can coordinate the chain for determining which goods and services have to be supplied and how, when and where they will be produced (Lee et al., 2011).

This thesis explores the coordination mechanisms in the Persian rug GVC. The relationships between the main suppliers, weavers, lead actors, and producers within three, key rug-producing regions of Iran are analysed to explore the different coordination mechanisms in the Persian rug GVC.

1.2 Research justification and context

Governance and power relationships are two important elements in the coordination and control of the chain/network (Coe, et al., 2008a). The importance of the governance issue is well established in the GVC literature. The core framework is the GVC governance analysis proposed by Gereffi et al. (2005) involving five types of governance based on the three elements of complexity of transaction, capability of suppliers, and codification of information. The importance of the analysis of GVC governance has been emphasised in the literature on the GVC/GPN. As explained by Humphrey and Schmitz (2001) who stated that "the concept of 'governance' is central to the global value-chain approach"(p. 20). Furthermore, Gereffi & Fernandez-Stark (2011) argued that "governance analysis allows one to understand how a chain is controlled and coordinated when certain actors in the chain have more power than others" (p. 2).

However, in previous studies, the significant attention was given to the role of large global actors (such as transnational corporations (TNCs)) in coordination mechanisms and the role of the other actors, such as local suppliers, regional lead actors, and national actors are neglected in governance mechanisms by the GVC framework (Fold, 2014). The importance of studying the role of these actors and territories is mentioned by some scholars (e.g. Coe & Hess, 2013; Fold, 2014; Kelly, 2009; Yeung & Coe, 2015). Local, regional, and national processes in the GVC/GPN are the driving forces in regional development (Kelly, 2009) and are important for less developed economies (Gibbon, 2001; Saliola & Zanfei, 2009).

For the present research, an industry from the developing country of Iran is selected to study the role of local lead actors in coordination of the value chain. The Persian rug industry as a context of analysis for this study is valuable for the GVC/GPN discipline due to several reasons. First, this industry is a traditional production system in which the majority of vital knowledge about technical issues and coordination of value-added activities are embedded within the country and specifically within the regions and sub-regions. The GVC/GPN approach has mostly considered the uneven power relations between local suppliers and TNCs.

Second, rug production is an important light industry with significant export value for Iran. The industry is strongly linked to the traditions, culture, and history of different regions, each of which has specific features that are important in the Persian rug GVC. However, for global markets, only particular types of rugs from specific regions are successful. The three provinces of Isfahan, Tabriz, and Qom dominate the country's export production, constituting 85% of the Persian rug export market. The reputation of branded rugs from these provinces in global markets has increased in recent decades to the point where Persian rugs are mostly known by these brands.

The involvement of these provinces and the impacts of their characteristics on the Persian rug value chain are the broad context for this research. In the Persian rug value chain, weavers and producers are the key actors involved in production, while other chain actors such as merchants in export ports support the industry. The Persian rug traders in Hamburg port in Germany are a main group of actors in this industry. This city is known as the centre of handmade rugs in which traders in this city have strong relationships and networks with

particular buyers in global markets. Since a hundred years ago, producers in Iran have strategic relationships with Iranian traders in this city.

Non-chain actors, including the Iran National Carpet Centre (INCC), universities, and various unions of actors, most commonly unions of weavers, have indirect impacts on the relationships between chain actors and their performance in the industry. However, the relationships between lead actors (producers) and suppliers (weavers) are the main target in the analysis of the coordination of the Persian rug value chain.

Of particular significance is that this industry is the substantial segment of the Iranian light industry as a major non-oil export commodity which provides around five million jobs (directly and indirectly) for the country (Iran National Carpet Centre, 2014).

In addition, as a result of recent political sanctions on the economy of Iran, the rate of export has declined in recent years and led to unemployment issues. Based on the Iran National Carpet Centre (INCC)'s data, Figure 1 shows the statistics for the 10-year period, 2003 to 2013 of exports in the segment of handmade rugs from Iran. However, this data shows that this industry, as one of the main industries for the country, has experienced turbulence in recent years in terms of global activities.

Figure 1 shows the results in 2007 of the first wave of sanctions, which provided some difficulties for both the traders and producers and caused a decline in exports. In 2007, almost half the Iranian traders operating from the Iranian rug industry's major export hub, the port at Hamburg, Germany, left this hub and producers in Iran decreased their production to around USDM 400. A similar situation happened in 2011 in which severe embargoes and

international laws banning the export of Persian rugs to the U.S caused a significant decline to USDM 330.

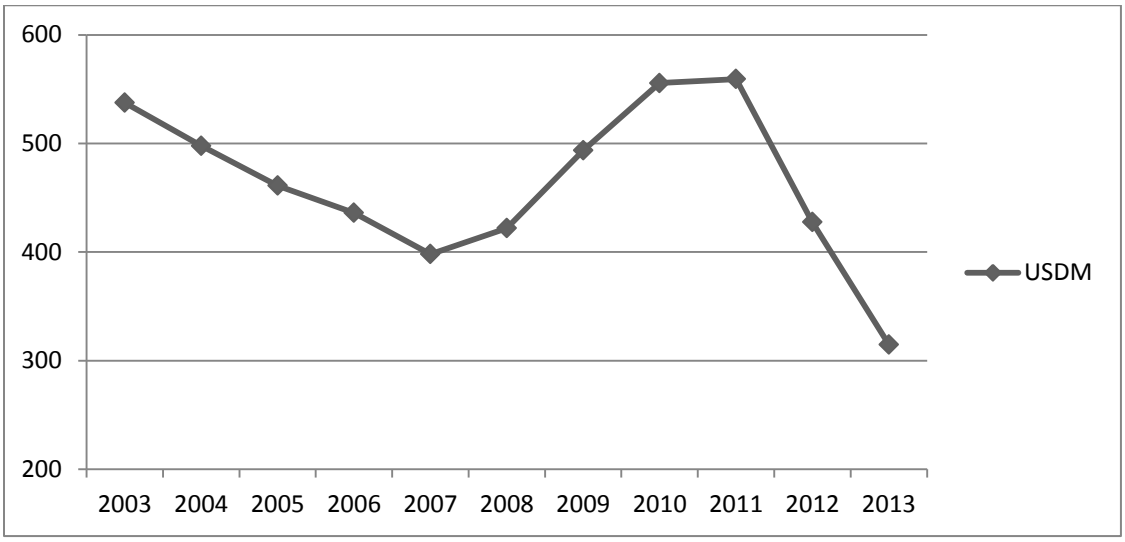


Figure 1- Persian rug exports (in U.S million dollars) for the 10-year period, 2003 to 2013.Source: Iran National Carpet Centre (INCC).

These declines represent the need to consider how some actors and regions in this industry are able to survive in global markets and remain successful. The GVC analysis provides a good insight about the coordination mechanisms within the industry that have contributed to this survival.

1.3 Research aims

This research explores the two main purposes of determining the governance mechanisms and also the role of embeddedness in coordination mechanisms in different regions in Iran. The following sub-sections provide further details about these research purposes.

1.3.1 Governance mechanisms

One of the main aspects of the GVC governance approach is that variation in governance mechanisms occurs. It is argued that even a single node of the chain can adopt different governance types, or a mixing of governance types within a GVC (Mahutga, 2012; Sturgeon, 2009).

Identifying the variation in governance types in the context of the research (the Persian rug GVC) is one major purpose of the present study. This issue is examined in two ways. First, the governance types are predicted based on the three determinant variables that are the core of the GVC governance approach by Gereffi et al. (2005). Their framework was essentially formed to identify the governance types based on the degree of complexity of transactions between the key actors, the level of codification when these actors have relationships, and finally, the capability of suppliers who have the main interactions with lead actors in the GVC. Five hybrid types of governance are predictable from this approach.

Second, a comparison between the above governance types and the real situation in the context of the Persian rug industry is undertaken in order to develop and refine Gereffi et al.'s (2005) theory. As such, the observed governance types based on the evidence from the research are determined according to the data from interviews. When these two aspects of the governance mechanisms are matched, determining the dominant governance mechanisms (and the production modes) is worthwhile to provide a basis to understand the characteristics of a GVC (Sturgeon, 2009) in a specific territory.

The above type of analysis and comparisons among the regional case studies is rarely considered in the GVC literature.

1.3.2 The role of embeddedness in the coordination of the value chain

GVC research is often 'placeless' (Bair, 2008) exhibiting a lack of the spatial dimension in a GVC analysis (Neilson & Pritchard, 2009). Recently scholars have argued that "it is impossible to study a GVC-GPN from *nowhere*" (Neilson, et al., 2014, p. 7); in particular, the importance of territorial and institutional aspects of regional analysis are not sufficiently considered (Rainnie et al., 2011).

Researchers have pointed out that in order to achieve regional development, the ideas from the GPN approach can be useful (Fold, 2014; Neilson & Pritchard, 2009; Neilson, et al., 2014; Sturgeon, 2009). Another main purpose of this study is, thus, to propose using the concept of embeddedness from the GPN approach to blur "the distinction between the GVC and the GPN approach" (Fold, 2014, p. 782), and explain the differences of the observed and predicted governance types. Because each region has specific factors that are important in coordination mechanisms, a number of ways to coordinate the chain has emerged. The geography of the region, the location of production, and regionally based socio-cultural factors are essential in coordination mechanisms in these regions.

First of all, each region has a unique geography which impacts on rug production and affects its global value chain participation. Geographical dimensions directly impact on the quality of raw materials, style of weaving, design, and colouring. Hence, some of these geographical factors are physical

and others are geographical factors due to human intervention. For instance, spatial issues such as proximity between actors are important in the way that producers choose a specific production mode.

The second main factor is the place of production. There is an important distinction between rugs produced in urban and village areas. Urban rugs are thinner with more elegance, woven with colours with greater contemporary marketability, and made by urban weavers. Village rugs are thicker with a lower level of quality in colours, elegance, and raw materials. Producers with more knowledge and power in this industry have greater control over all stages of rug-making in urban districts, giving them significant advantages in the markets. They can, for example, customize rugs to suit global demands.

Gender is another key factor in the Persian rug GVC. In Isfahan the majority of weavers are women while in Tabriz the weavers are primarily men and in Qom the gender composition is equally split between males and females. These gender differences impact on relationships between actors, the power of producers, and the value that is captured by actors. For instance, in Isfahan the majority of weavers who are women are subordinate as second income providers for their families and have less social power. This socio-cultural element gives more power to producers who are men and then afforded greater opportunities for coordination.

In sum, these aims provide a contribution to decrease the tension in the GVC and the GPN approaches. The coordination mechanisms within the Persian rug GVC explain the ways that the production modes of rug making established by producers, such as making rugs in the factory system of production, home-based weaving, and the other production modes which are linked to the regions. Some major elements of embeddedness are important in shaping the

production mode and the governance types. As a result, two main tasks in each regional case study are to determine the governance types and consider the role of embeddedness in the coordination mechanisms.

1.4- Research questions

As explained earlier, the impact of regional elements on shaping specific production modes and governance types in the three main regions in the Persian rug GVC are investigated in this thesis. The main research question is:

RQ: To what extent does Gereffi et al.'s (2005) framework provide a basis for understanding how the Persian Rug GVC is coordinated in different regions?

Through the analysis of the relationships between the main actors, one overarching question, two main research questions, and four sub questions are proposed in this thesis.

RQ1- In what important ways do the coordination mechanisms within the Persian rug GVC differ across regions?

RQ.1a What production mode have emerged in each region?

RQ.1b To what extent can the three determinant variables predict the governance of the Persian Rug GVC?

RQ.2- What is the role of embeddedness in shaping coordination mechanisms in the Persian rug GVC?

RQ.2a What is the role of embeddedness in shaping different production modes in the Persian rug GVC?

RQ.2b What is the role of embeddedness in shaping specific governance types in each production mode?

RQ.3c How does embeddedness explain the variation of governance types within each production mode?

1.5 Structure of the thesis

This thesis encompasses eight chapters. Chapter 1 provides an overview of the main aspect of the research, the background, research justification, research questions, and the structure of the thesis. Chapter 2 encompasses a review of the relevant literature which provides a background for the GVC and GPN approaches to analyse the global production networks.

Chapter 3 sets out the research methodology that is used to answer the research questions in which the data collection and analysis methods are explained. Chapter 4 describes the Persian rug GVC by exploring the main activities, actors, division of labour, and explanation of the regions for understanding the context of the research.

The next three chapters examine the regional case studies to answer the research questions. Chapter 5 analyses the first region, Isfahan province, in which the observed and the predicted governance types are consistent, and in

which embeddedness provides further explanation about the way that a governance mode occurs in practice, and also the reasons that a specific production mode is dominant. Chapter 6 analyses the second case study, Tabriz region, in which the GVC approach operates for some production modes and in which embeddedness explains the way that a governance mode occurs in practice, and also the reasons that a specific production mode is dominant. For the final case study in Chapter 8, Qom province is analysed. In this case study the majority of rug production does not match with the GVC framework due to the different mechanism of coordination among the other regions. Embeddedness explains the role of regional impacts on coordination as well. Finally, in Chapter 9 the overall discussion and conclusions are proposed.

Chapter 2

Literature Review

2.1 Introduction

The aim of this chapter is to review the literature of the GVC analysis and the important studies on coordination and governance debates to identify the gap that was highlighted in the previous chapter. Because of the deficiency of the concept of embeddedness in the GVC governance theory, this chapter focuses on the concepts of GVC governance and GPN embeddedness. The insights from these two approaches provide a basis for the research to examine the role of embeddedness in the coordination of the chain in the context of the Persian

rug industry. This chapter first reviews the concept of governance in the global value chain (GVC) approach; then the GPN framework and its focus on coordination mechanisms are reviewed. In the third part, the limitations of the GVC approach are evaluated; and finally, in the last section the embeddedness concept is reviewed.

2.2-Governance in the global value chain (GVC)

Literature on the GVC governance shows a rapidly growing volume of both empirical and theoretical research. These studies concentrate on the relationships between buyers, suppliers, and other major actors in the global economy. The empirical studies predominantly focus on manufacturing industries through case studies of specific sectors which mostly focus on apparel and clothing, food and agriculture, the automotive industry, and some research on IT and high-tech industries (Ivarsson & Alvstam, 2010). While a large number of these pioneering empirical studies are highly influential, "they remain fairly typological and categorical" (Neilson, et al., 2014, p. 5). These empirical studies confine the theoretical development of the GVC framework.

The functional integration of the geographic spread of economic activities across national boundaries (Dicken, 2007) is underscored by specific attention to the coordination mechanisms of the value chain (Bair, 2009; Dicken, 2007; Kelly, 2009; Sturgeon, 2009). The research on the global chain production system has evolved from some major frameworks, including world systems theory, global commodity chain (GCC), and global value chain (GVC) (Bair, 2009; Sturgeon, 2009). The notion of governance is the central theme in the flourishing literature of chain-like globalization (Bair, 2005; Bair & Palpacuer, 2015; Gereffi, et al., 2005; Gibbon & Ponte, 2008).

The following sections explain these efforts and highlight the way that the present research proposes a new combination of some notions from these frameworks in the governance concept within the GVC literature. This literature review explores the main realm of the governance research on global value chain and related scholarships that are relevant to the coordination mechanism of the chain-like global economy. The first section explores the basis of the governance mechanism in the global commodity chain approach; then, the main studies in shaping the current governance debates on GVC are evaluated.

2.2.1 The GCC approach

Bair (2009) argued that the GCC approach grew out of the world system theory, and the GVC framework has grown out of the GCC approach (Bair, 2009; Sturgeon, 2009). The GCC approach introduced by Gereffi and Korzeniewicz (1994) was the first step in researching cross-border chain functions (Sturgeon, 2009). GCC analysis provided a basis to examine the value-added chain by considering geographic advantages, power and governance structures, locational institutions, and the strategies of the main actors (Bair, 2009; Gereffi & Korzeniewicz, 1994; Levy, 2008; Patel-Campillo, 2011; Sturgeon, 2009). Three main dimensions[1] of the GCC framework are:

i) An input-output structure of relationships: identify the major activities/actors and dynamics/ structures of global economies

ii) Geographical and territories impacts: identify lead firms and the country-level positions within the chain

[1] Gereffi in 1995 added a further dimension to the GCC framework as institutional context.

iii) Governance structure: power relations among actors that are essential in the coordination of the chain, by introducing buyers/producers driven chains.

The governance structure is the centre of the GCC framework, which addresses the insight of how a chain is coordinated and controlled by most powerful actors. Gereffi (1994) defined the governance in the GCC as "authority and power relationships that determine how financial, material, and human resources are allocated and flow within a chain" (Gereffi, 1994, p. 97). The GCC approach describes the governance according to two main chains: "buyer-driven" and "producer-driven" chains. Buyer-driven chains are top-down coordination tasks by global buyers/retailers (branded corporations) who have limited production activities and who control the activities within the chain to ensure correct operations in terms of standards and protocols. However, producer-driven chains are a vertical integration of suppliers. Coordination is exerted along "all segments of the supply chain and leverages the technological or scale advantages of integrated suppliers"(Gereffi & Fernandez-Stark, 2011, p. 8; Gereffi & Korzeniewicz, 1994).

In both governance types, lead firms (buyers or producers) are the most powerful actors who are branded merchandisers and multi-national corporations (MNCs). Lead firms have the ability to control the entry barriers and geographical scope of the formation of the chain. The degree of a lead firm's power is related to its ability to increase the chain entry barriers at the segments of its own chains (Bair & Gereffi, 2003; Kaplinsky, 1998, 2004). Establishing the barriers to enter and participate within the chain is a tool for lead firms to control the quality of actors/activities (Mitchell et al., 2009; Ponte & Gibbon, 2005), which is highlighted by their capacity to extract a variety of

economic rents (Kaplinsky & Morris, 2008). These rents are important in controlling and protecting the valuable and scarce resources for competitive aims[2].

Entry barriers are related to the geographical dimension and determine the scope of coordination by producer/buyer driven chains (see Figure 2). Producer-driven lead firms are willing to maintain the most important functions in-house (internalization of functions), while buyer-driven lead firms tend to coordinate the chain by outsourcing or off-shoring activities (Mahutga, 2012).

This is because buyer-driven chains have more consideration of the products' design and marketing aspects than production and manufacturing techniques. As a result, they can outsource the production lines in the other geographical scopes, particularly in labour-intensive products. But, in capital/technology-intensive chains, knowledge production and technologies are essential for producer-driven lead firms to manufacture their products in-house (Sturgeon, 2009).

For researchers in this discipline, the GCC framework provides a basis of interrelated activities among actors in the chain-like relationships in global markets in which the geography and the quality of actors determine the type of coordination within the chain. The main concern for researchers in this discipline was that the theme of 'governance as driving' was based on "a static, empirically situated view of technology and barriers to entry" (Sturgeon, 2009,

[2] These include monopoly, resource, endogenous, and exogenous rents (Kaplinsky & Morris, 2008).

p. 9) and the typology of driven forces were too narrow or excessively abstract (Bair, 2005; Henderson, et al., 2002).

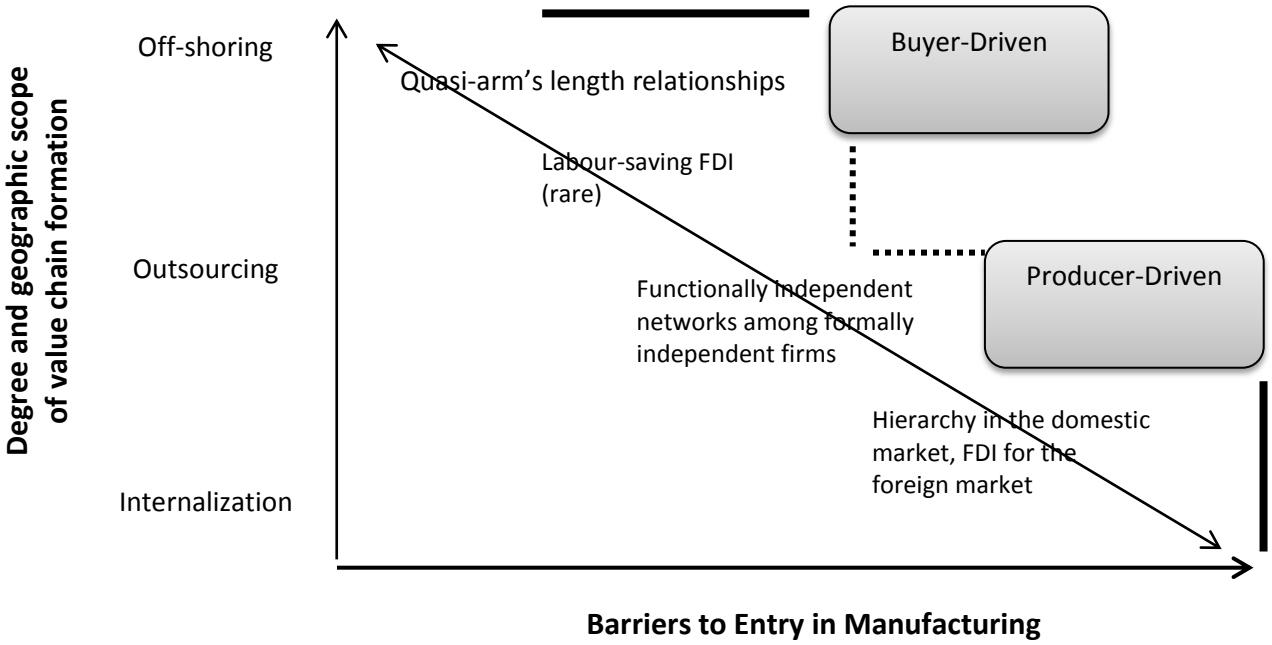


Figure 2- The relationship between the degree and geographic scope of global value (Mahutga, 2012).

Gibbon et. al (2008) outlined the three critics of the GCC. First, earlier research showed that the governance forms in actual chains are different from the proposed driving forces. For instance, lead firms drive the commodity chain in industries such as agriculture (Gibbon, 2001), while some research-based industries are driven by different driving forces such as the technology-driven chain in high-tech industries (Bair, 2008; Gibbon, 2001; Ó Riain, 2004). Second, some researchers believe that buyer-driven governance could develop in all industries, for instance, when branded producers control functions, including designing, marketing, retailing, and consumer finance. The third and important

criticism is that a real value chain constitutes a variety of strands that are not categorized in producers' or buyers' forces. These criticisms provide grounds for developing the other approach on governance issues under the global value chain framework (Bair, 2009; Gibbon, et al., 2008; Sturgeon, 2009). However, the GCC framework is not omitted in the GVC framework and the bipolar governance framework of the GCC has been used in earlier and recent research for contribution to the contemporary theory of GVC governance (Ponte & Sturgeon, 2014).

To sum up, the governance as a driving theme in the GCC approach represented two main driving forces: producer- and buyer-driven. Buyer-driven commodity chains, which are the main schema in the GCC framework (Bair, 2005; Henderson, et al., 2002), control the chain by manufacturing governance and also some forces in designing, branding, and marketing to set some entry barriers to the chain. The entry barrier mechanism by the lead firms provides less equity in the power relations between lead firms and suppliers. The GVC governance framework has provided a more in-depth basis for evaluating the coordination of the chain.

2.2.2 The GVC governance approach

The governance mechanism considered through the GCC framework's lens is mostly formed by the view that lead actors can create some barriers and create a top-down coordination mechanism. This type of coordination can decrease the quality of their participation in global economies. Sturgeon (2001, 2002) argued that the governance in high-tech industries is not similar to the commodity industry such as apparel manufacturing because suppliers are highly competent actors. Lead firms (e.g. Dell or Compaq in the computer

industry) can outsource high-value functions to some suppliers in developing countries. The chains with these relationships between lead firms and "turn key suppliers" are modular chains in which actors can easily find new linkages within the chain (Gibbon, et al., 2008; Sturgeon, 2001, 2002).

Such findings have motivated other researchers to shift from utilising a governance framework that focuses on 'driving' to a coordination framework. In 2005, Gereffi, Humphrey and Sturgeon introduced a parsimonious governance theory to identify different coordination types of relationships between actors. They considered three important aspects of a chain/network-type of value-added relationship: identification of the activities within a node or among different nodes; the flow of knowledge through the nodes; and the place of the nodes (Sturgeon, 2009). As a result, they found three main determinant variables to address the type of relationships: the complexity of transactions about the production process within the chain; the codifiability of the knowledge about these tasks; and the level of capability of suppliers (Gereffi, et al., 2005). Five generic types of coordination (see Figure 3) are recognized by the three variables:

1) **Market linkages**: simple *arm's length* linkages which are governed by price

2) **Modular linkages**: where "complex information regarding the transaction is codified and often digitized before being passed to highly competent suppliers" (Sturgeon, 2009, p. 10). These emerged from case studies of contract manufacturing in the electronics industry (Sturgeon, 2002, 2009)

3) **Relational linkages**: actors exchange tacit knowledge with a high degree of explicit coordination

4) **Captive linkages**: with a high degree of explicit coordination, suppliers low in capability are controlled by lead firms

5) **Hierarchical linkages**: lead firms manage all functions hierarchically by vertical integration linkages.

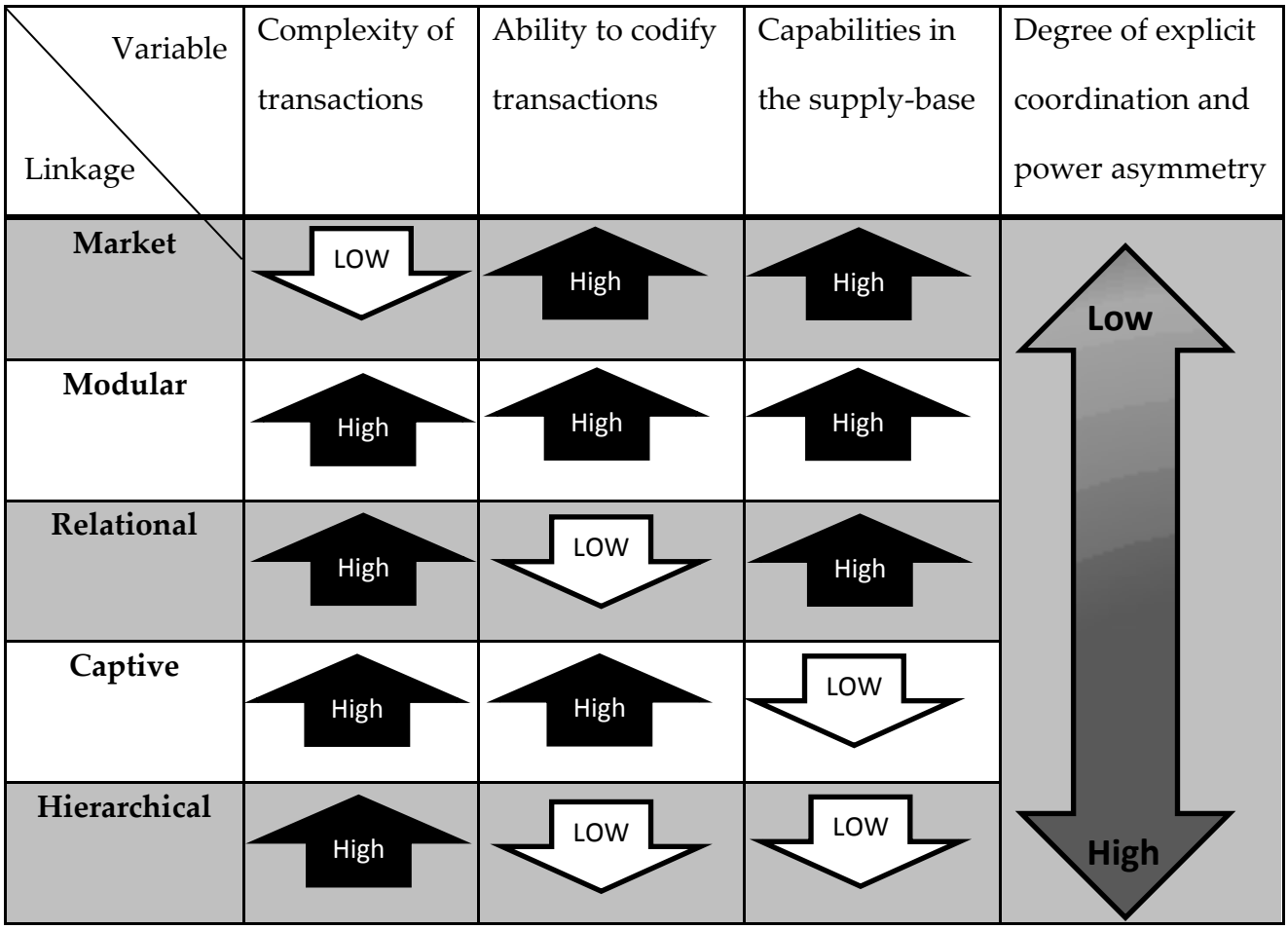


Figure 3- Five governance types in the GVC framework (Dicken, 2007; Gereffi, et al., 2005; Sturgeon, 2009).

Market linkages between highly capable suppliers and lead firms are described when transactions are easily codified and product specifications are simple. Because of the low level of complexity of the information, transactions within the chain are governed by price *with little explicit coordination*. In addition, because of the repetitive, inter-firm exchanges, the switching costs of changing the parties are low.

In **modular** linkages, product architecture is modular; thus, highly capable suppliers are required and inter-firm relations are highly specialized by a high informational complexity and ease of codification. Buyers need to exert direct monitoring and control of the chain but if producers are turn-key suppliers, they are competent to have full control of their own production process and have some financial and capital authority "for components and materials on behalf of customers"(Gereffi, et al., 2005, p. 84). Access to the codified knowledge provides benefits, including speed, flexibility, and access to low-cost inputs (Gereffi, et al., 2005).

In **relational** linkages, the possibility of codifying the product specification is low where information is complex and suppliers are highly capable. This linkage involves mutual interdependencies managed by social relationships among actors. Exchange of tacit knowledge occurs "through reputation or family and ethnic ties" and is facilitated by spatial proximity and trust between actors (Gereffi, et al., 2005, p. 84). This linkage is characterised by the frequent in-person interactions and the chain is managed by high levels of explicit coordination. The switching cost of parties is high.

Captive linkage is highlighted by one-way dependency of suppliers when the codification and complexity of information are at a high level but suppliers are

not highly competent. Lead firms confine suppliers to a narrow range of tasks (e.g. assembly and regular production) but handle the complementary tasks, such as marketing, designing, and raw material purchasing. This means that a high level of control and intervention in the production process are required. As a result of this level of direct relationships with specific suppliers, the switching cost is high and tends to lead firms to lock-in suppliers.

The final type of governance is **hierarchical** which is characterized by vertical integration, product specifications that cannot be codified, complex information, and suppliers who are not highly competent. In such cases, lead firms tend to develop all production stages in-house (Gereffi, et al., 2005). As a result, they exert managerial control of the input-output production process to protect specific resources, including knowledge and intellectual property (Gereffi, et al., 2005). Figure 4 shows the schema of the five types of governance by Gereffi et al. (2005).

By shifting from the GCC framework, the GVC approach shows that while GCC addressed some specific functions for particular actors to drive a chain, the GVC approach provides an explicit framework of coordination types of the inter-firm exchange at specific nodes in the chain. Both approaches identify given distributions of attributes between firms and actors along chains where the type of governance (bipolar or fivefold) is linked to sets of expected outcomes (Bair, 2009; Gibbon & Ponte, 2008).

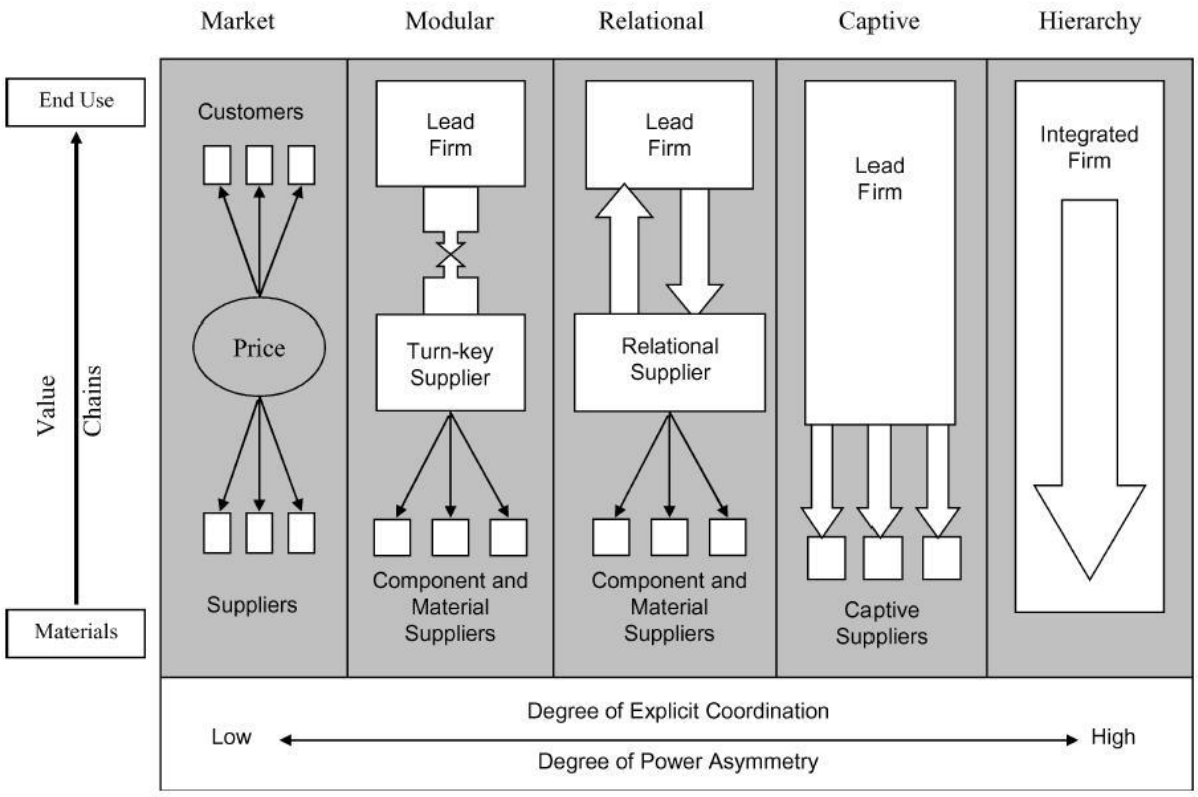


Figure 4- Governance types in the GVC framework (Gereffi, et al., 2005).

2.2.3 The other theory building efforts

2.2.3.1 Three pillars of global value chain analysis

Sturgeon (2009) believed that to facilitate theory building in the GVC's area, the main domains should be identified. A comprehensive list of these areas were identified by Henderson et al. (2002), which refer to mapping the spatial arrangement of the firm-level division of labour, power relations, the role of institutions, and the related concepts of value. In this way, the GCC framework, with its fourfold dimensions of input-output structure,

geographical and territories impacts, governance structure, and the role of institutions, provide grounds for building a broader theory of GVC analysis with the experiences from previous literature.

Sturgeon (2009) proposed that the first two dimensions (input-output structure and geography) are 'descriptive'. These dimensions are helpful to express the dynamics within a specific industry and for mapping the relationship among the major actors. Value chain activities and direct and indirect relationships within the industry are the foundations of this evaluation for a specific context in global economies. This evaluation of the context of this research is explored in the Chapter 4.

The other dimensions of governance and institutions are 'causal' and explain the observed organizational and spatial features of GVCs. Sturgeon (2009 suggested that "… the identification of powerful actors in the chain, and an examination of the sources of this power and the ways that it is used, remains a central project of GVC theory-building"(p. 21). Sturgeon (2009) split the governance notion into two areas: 'power' and 'coordination', and also recalled the 'institutions' dimension as the third factor in this value chain analysis. He named this framework as the 'three pillars in the GVC analysis' and defined the three dimensions as:

i) **Coordination**: The quality of linkages between actors, phases, and value-added activities which are explained via the GVC governance approach by Gereffi et al. (2005)
ii) **Power** distribution among internal and external actors in value-added chains

iii) The role of **institutions** in structuring business relationships and industrial location.

These elements individually provide dynamic factors of chain analysis and collectively provide a framework to explain why and how industries organize and places evolve, and "provide insight into how they might evolve in the future" (Sturgeon, 2009, p. 22). Figure 5 shows the evolution of the conceptual framework in the GVC analysis literature.

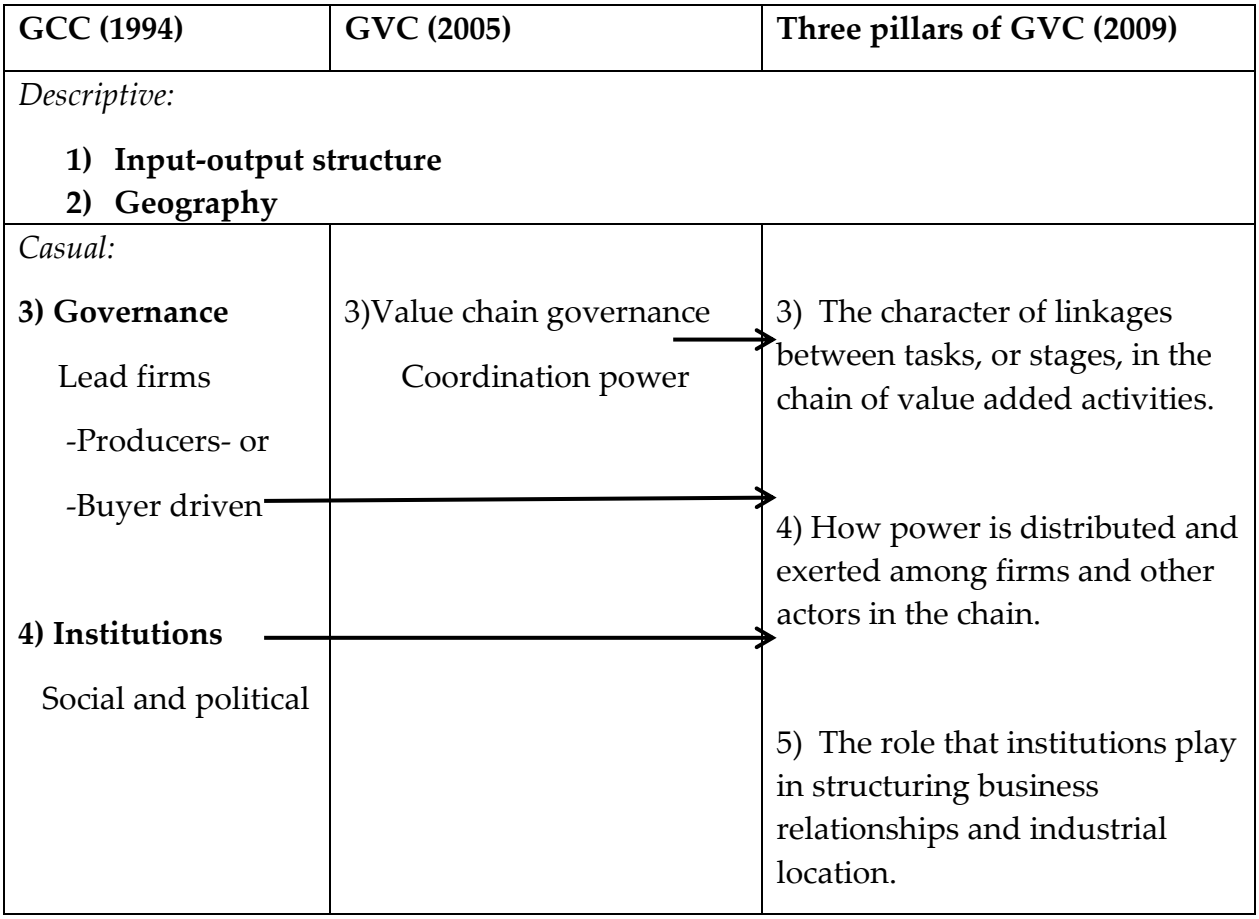


Figure 5- The evolution of the conceptual framework in the GVC analysis (Frederick, 2010).

Two main issues in the three pillars of GVC analysis are institutions and power relations. A brief review of these two dimensions (particularly power relations)

is necessary. Sturgeon (2009) argued that two types of ***institutions*** can be imagined in GVC analysis: first, bureaucratic organizations that include governmental and non-governmental organization, such as multilateral organisations (e.g. the World Bank) industry trade groups, labour unions, and advocacy groups; second, institutions without specific organisation that can change the social and political governance setting of global industries (Levy, 2008; Mosley, 2008; Sturgeon, 2009). The role of institutions is highlighted in the economic geography, such as the location of direct investment and influences on the domestic and local institutions on the relationships between actors.

Sturgeon (2009) also proposed that inter-firm/actor ***power*** in the notion of governance in the GCC/GVC approach is the central issue of GVC analysis. Almost all actors have a degree of power, including workforces, suppliers, lead firms, and consumers (Frederick, 2010; Sturgeon, 2009).

In the GCC approach, power is embedded in the "drivenness" of lead firms' functions, and the role of other actors and their power relations are omitted. In the GVC framework, power is highlighted by Gereffi et al's (2005) approach which is exhibited in the right side of Figure 5. The fivefold governance in the GVC approach considers the relative power of the lead firms via the "degree of explicit coordination" over its suppliers and also the degree of power asymmetry among actors (Gereffi, et al., 2005; Mahutga, 2014). It is believed that this level of attention to the power issue is obscure (Mahutga, 2014; Ponte & Sturgeon, 2014).

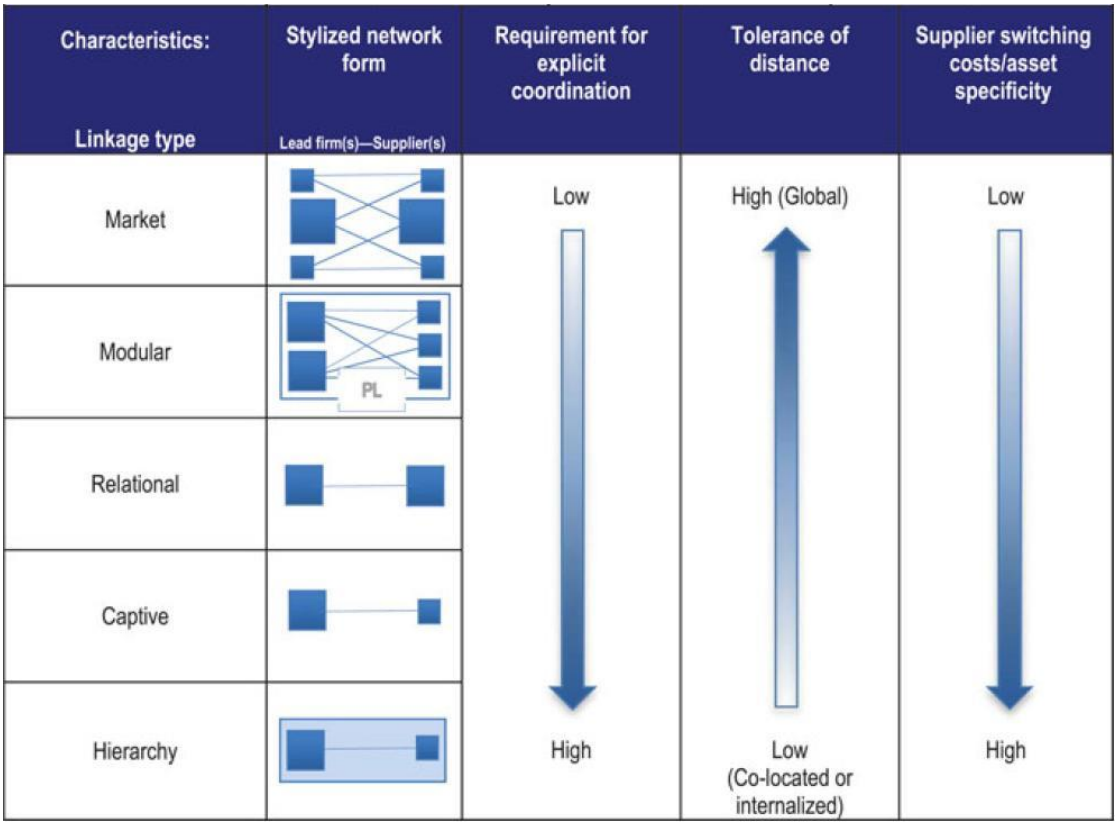
Ponte and Sturgeon (2014) suggested that the ease of supplier switching can keep supplier power low, particularly in a market and modular type of governance where finding competent suppliers is not difficult. In the relational value chain, finding and having long-term relationships with competent

suppliers encourages lead firms "to tolerate relatively high supplier power". If lead firms are highly concentrated (e.g. automotive industry), they can constrain relational suppliers, except in the case of platform leadership. Indeed, they have authority in marketing and technological issues that enables them to set standards and warrant higher returns to their products. Thus, "supplier power appears to be a rare commodity in GVCs and does not vary systematically between markets and hierarchies" (Ponte & Sturgeon, 2014, p. 205).

As such, Ponte and Sturgeon (2014) argued that power asymmetry should be neglected and replaced by three effective dimensions for assessing power relations in the GVC analysis. The first element is '*the requirement for the explicit coordination'* of the GVC which is high in the hierarchical type of coordination to the low level in the market type.

Second, the '*tolerance of geographic distance'*, has opposite attributes to the requirement of the explicit coordination. This dimension of power is low in relational linkages in which the exchange of tacit knowledge encompasses co-location strategies while in market linkages price-base relationships decrease the need for proximity. In captive and hierarchical types of governance, internalization is the strategy of suppliers and this situation is similar to the co-location. As a result, in the market and modular value chains, lead firms have to accept to delegate a degree of power because of the proximity issues.

The third dimension is the supplier switching costs and asset specificity. In the market and modular governance types, because the ability to codify knowledge is at a high level, the switching cost of suppliers is low. In captive and hierarchical linkages, because of internalization and limited access to competent suppliers (particularly in regional-base production) the switching cost is high (Ponte & Sturgeon, 2014) (see Figure 6).



*PL: platform leadership

Figure 6- Network type and power relations in different types of governance (Ponte & Sturgeon, 2014).

In sum, the three pillars of the GVC framework integrate the previous contribution of the GVC analysis and "develop ways of thinking that place novel and emergent features of the global economy in the foreground" (Sturgeon, 2009, p. 26). Figure 7 shows the way that the GVC framework represents the three pillars of GVC from previous traditions.

The three pillars framework of the GVC analysis highlights the importance of one key approach in the global economy which is introduced by the Manchester School of Global Production Network (GPN) and particularly the

notion of embeddedness that supports the three pillars aspects within the GVC analysis.

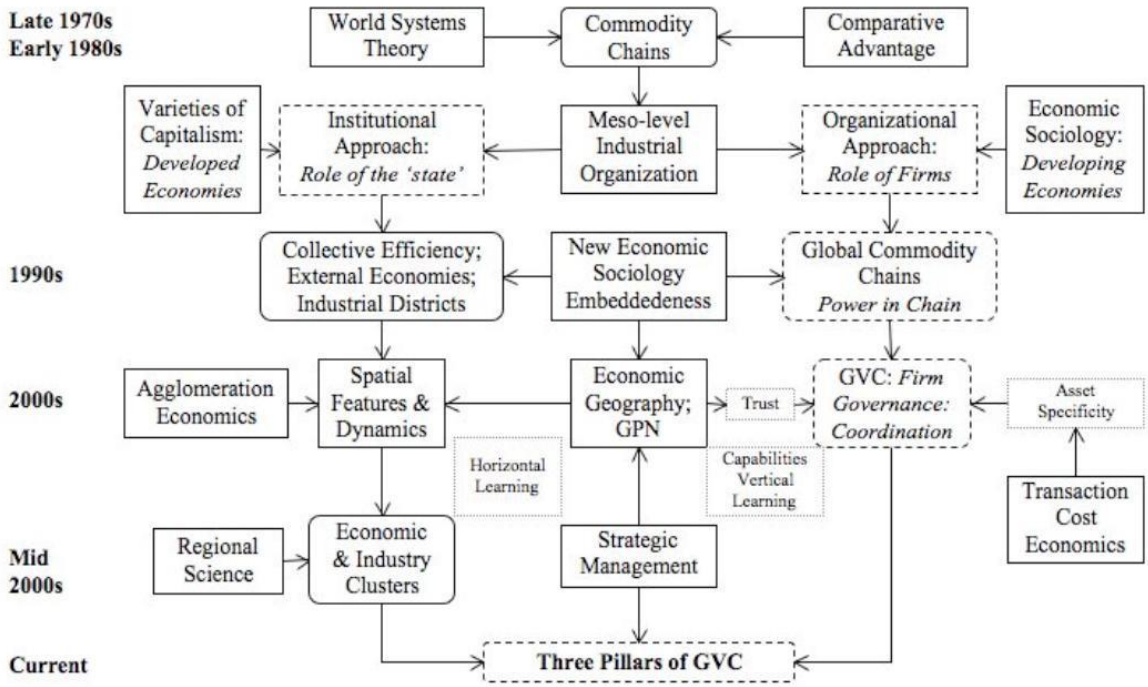


Figure 7- Evolution of economics disciplines and models to the three pillars of GVC (Frederick, 2010).

2.3- The GPN approach

The global production network (GPN) approach has the interrelated theme of governance which was proposed by Henderson et al. in 2002. They critiqued the GCC approach by providing four reasons for the shortcomings of the GCC approach. First, they argued that GCC is not an "ideal-typical construction" and the bipolar governance mechanism was formed based on some empirical realities in specific sectors and/or organisations. Second, the current situation of the chain is the lens of historical analysis, and the content of the nature of the

chain is omitted. Third, the ownership and nationality roots of a firms' establishment is neglected through the GCC analysis. Fourth, social and institutional aspects of the national level of the chain are not considered in the GCC framework (Henderson, et al., 2002). They conceptualised the new framework as a global production network (GPN) with insight from the GCC/GVC approach and actor-network theory (ANT)[3] "and varieties of capitalism/business systems literatures" (Coe, et al., 2008c, p. 267). The aim of proposing the GPN approach is to consider the multi-actor and multi-scalar features of the global economy. They defined the GPN as "a conceptual framework that is capable of grasping the global, regional and local economic and social dimensions of the processes involved in many (though by no means all) forms of economic globalization" (Henderson, et al., 2002, p. 445).

Three main elements to analyse the GPN were introduced by Henderson et al. (2002) as ***value*** (creation, enhancement and capture), ***power*** (corporate, institutional, and collective), *and* ***embeddedness*** (territorial, societal, and network).

According to Hess (2008), various aspects of power are the core concepts of governance debates in the GPN (Coe, 2012; Hess, 2008). In addition, other regional aspects of chain/network practices are important in the governance notion in the GPN. For instance, Bair (2005) argued that ethical and political issues that are concerned with labour standards are incorporated with the governance practices in the GPN (Bair, 2005).

Inter-firm power in the notion of governance in the GCC/GVC approach is the central issue of power relations in the GVC analysis. However, the GPN approach has provided a rich overview of the concept of power where

[3] Actor-network theory "emphasizes the relationality of both objects and agency in heterogeneous networks ('relational materiality'), pointing out that entities in networks are shaped by, and can only be understood through, their relations and connectivity to other entities" (Henderson, et al., 2002, p. 442).

horizontal linkages that are based on trust and reciprocity are the core issues (Bair, 2008). Henderson et al.'s (2002) three forms of power which are important in the power asymmetries and value concepts are:

i) **Corporate power** is determined by the role of lead firms in decision-making and resource allocation along the chain/network. The main aspect of this type of power is the asymmetrical distribution of the capacity of different actors (lead firms and suppliers) to influence each other in their interactions.

ii) **Institutional power** is the exercise of power by the national and local institutions, state or regional and international agencies (Franz, 2010; MacKinnon, 2012), as well as trade unions and NGOs (Henderson & Nadvi, 2011).

iii) **Collective power** is the exercise of power by collective agents (employers' associations, NGOs, governmental, economic and environmental organizations) "who seek to influence companies at particular locations" (Henderson, et al., 2002, p. 451).

As a result of identifying these sources of power, the importance of spatial and geographical aspects of power and coordination are highlighted, where the places of this source of power are important to create, distribute, and capture value in value-added activities. In fact, production networks are bounded in specific regions in which lead firms can exercise their power (Johns, 2006). Few studies have linked such a viewpoint with the GVC governance theory to build a stronger basis for globalisation analysis.

Christopherson and Clark (2007) argued that all types of networks encompass hierarchies of power where, for regional networks, power is an essential aspect of developmental analysis (Christopherson & Clark, 2007). While the

GCC/GVC approach is more narrowly focused on inter-firm relations, the GPN approach considers a variety of actors within or beyond the chain/network, such as national, regional and global institutions, labour groups and other stakeholders (Mahutga, 2014), and even national innovation systems (Ernst, 2002) to identify the functions of power in regional development. In the GPN literature, geography of production and regional development are analysed by re-introducing the concept of power relations between local assets (i.e. the labour, technological and institutional resource base) and firm strategies (Christopherson & Clark, 2007; Coe, 2012).

Regional development is "a dynamic outcome of the complex interaction between territorialized relational networks and global production networks within the context of changing regional governance structures" (Coe et al., 2004, p. 469). The way that countries and nations could be successful in the regional development trajectories depends on the degree that they can capture value from the activities in the GPNs (Bowen, 2007). In the GVC approach, the role of regional institutions is highlighted not only by specific agencies but also on "local arms of national/supranational bodies (e.g., a trade union's "local" chapters) and extra-local institutions that affect activities within the region without necessarily having a presence (e.g., a national tax authority)"(Yang & Coe, 2009, p. 35). These institutions are important in the analysis of power and regional development as they cause GPNs ties down in specific places (Yang & Coe, 2009).

Scholars in the GPN camp have recently developed a new paradigm about theory-building in the GPN framework. Yeung and Coe (2014) argued that the previous GPN scholarships "provide a more generally applicable conceptualisation of the GPN" (Henderson, et al., 2002, p. 444) and proposed

the heuristic framework; but developing a theory toward the global production economy is not achieved from the previous studies. They called the previous studies as the GPN 1.0 and suggested a new framework as GPN 2.0.

GPN 2.0 has reframed both approaches of the GPN and GCC/GVC approaches. This framework has offered another effort in the organisation and coordination of the global production network in a different context. By an actor-centred focus, GPN 2.0 has proposed that some competitive dynamics drive companies' strategies. These competitive dynamics are "optimizing cost-capability ratios (e.g., labour, technology, knowhow, and capital), sustaining market development (e.g., reach and access, dominance, time-to-market, customer behaviour, and preferences), and working with financial discipline (e.g., access to finance, and investor and shareholder pressure)" (Yeung & Coe, 2015, p. 34). The unique combinations of these competitive dynamics shape four strategies in global markets as intra-firm coordination, inter-firm control, inter-firm partnership, and extra-firm bargaining. They believe that these combinations of strategies can defy the parsimonious typology from the GVC approach.

Bair and Palpacuer (2015) criticised the GPN 2.0 approach for its similarity to the GVC governance theory. Similar to Gereffi et al.'s (2005) seminal article on the GVC governance approach, GPN 2.0 proposed three determinant variables (competitive dynamics) and included some global strategies based on the trajectories of these dynamics (Bair & Palpacuer, 2015).

A literature review of both the GVC and GPN approaches shows that the efforts by scholars continue to reframe the concepts from similar ideas. Although the GVC framework provided a well-defined typology of governance, the GPN camp proposes a contribution of more attention to the regional importance in the coordination analysis of the global economy.

Through the lens of embeddedness from the GPN approach, a deeper understanding of how coordination plays out in different economies and localities can be added to the parsimonious typologies of governance issues in the GVC approach. Such contribution will conclude the competition from these approaches and bring an overview of both camps to explore the coordination mechanisms within the global markets. The next section explains how the embeddedness debate can fill the GVC's gap.

2.4 Limitations in the GVC approach

The previous section of this literature review has shown that governance is the focal aspect of the majority of studies in the GVC approach (Fold, 2014; Fold & Larsen, 2008; Gereffi, 2014). According to Fold (2014), due to the "seminal status" of the work by Gereffi et al. (2005), the majority of scholars have particularly focused on exploring governance types and the primacy of three internal variables (codification, complexity, and capability) to determine the chain coordination. Some studies have focused on the three variables but they do not explicitly express the role of these variables in shaping different governance types. For instance, some researchers have explained the role of codified and uncodified knowledge in terms of specific governance types (Sturgeon et al., 2008). In addition, the role of three Cs (the three variables) in upgrading is investigated through the governance types in cluster-based businesses (Giuliani et al., 2005; Nadvi & Halder, 2005), and, to some extent, the way of knowledge transfer in different codified forms in different governance realms (Saliola & Zanfei, 2009).

The governance types that were described by Gereffi et al. (2005) are reflected by a specific combination of the three Cs, while different combinations of the

amount of these variables (between high and low) are possible. Fold (2014) believed that scholars paid more attention to the theoretical part of the Gereffi et al.'s (2005) paper and neglected the rest of the paper that included the "rich empirical material on *shifting forms of governance*, regulatory *institutions* and how they affect the upgrading of firms in different GVCs" (Fold, 2014, p. 780). In addition, from the last statements in the seminal paper, Gereffi et al. (2005) addressed this issue by proposing that while the GVC concerns internal variables of the global structure of the economy, "local and national structures and institutions also matter"(p. 98). They argued that their "work has usefully stressed the spatial embeddedness of tacit knowledge and the importance of tight interdependencies" (p. 98) between actors[4] which have profound effects on the governance in the GVC (Gereffi, et al., 2005).

Surprisingly, little evidence has been provided in the GVC literature to address the regional importance to the global economy and GVC studies are often 'placeless' (Bair, 2008), while recently, scholars have argued that "it is impossible to study a GVC-GPN from *nowhere*" (Neilson, et al., 2014, p. 7). In particular, the importance of territorial and institutional aspects of regional analysis are not sufficiently considered (Rainnie, et al., 2011).

The major critiques against the GVC approach (mostly from the GPN approach) were about linear (vertical) analysis, and neglected intra-firm relationships (Coe et al., 2008b), and ignored the role of other actors in governance (Bair, 2005, 2009; Fold, 2014). GPN approach has aimed to explore regional development by focusing on "the dynamic 'strategic coupling' of global production networks and regional assets, an interface mediated by a range of institutional activities across different geographical and organizational

[4] The original focus was on "geographically clustered firms".

scales" (Coe, et al., 2004, p. 469). However, recently scholars have argued that both the GVC and GVC approaches are not able alone to fully consider regional development (Fold, 2014), and are not able to provide a "causal explanation of why and how economic development takes place in different regional and national economies" (Neilson, et al., 2014, p. 5).

Scholars have suggested that the GVC approach is applicable to regional analysis by enriching the methodology with GPN elements (Fold, 2014). For instance, a recent linkage of these approaches is an effort to explore one of the GVC notions (the dynamics of industrial upgrading) by considering the dynamics of GPN, particularly regional and local specifications (Liu, 2016). The above deficiency of the GVC approach has been fully considered by one of the main aspects of the GPN approach in which the relationships between actors in particular situations and places are explored as the concept of *embeddedness* (Bair, 2005; Coe, 2012; Coe, et al., 2008b; Hess & Yeung, 2006). However, little evidence has been provided to consider the impact of embeddedness (from the GPN lens) on different governance types in the GVC approach. Analysis of the relationships between actors in the GVC through the lens of embeddedness provides an opportunity to fill the GVC gap in the sense of highlighting the importance of regional governance issues. As such, the present research evaluates the role of embeddedness in the Persian rug industry to explore how different governance types are formed and have dominated in particular regions. To develop this understanding, the first step is to analyse the governance types as outlined by Gereffi et al (2005) by focusing on the production processes and their coordination. In the second step, the ways in which those governance choices are analysed as much as about place, and the opportunities and constraints that place creates for governance possibilities, and influences how governance is ultimately enacted in any particular location.

Understanding governance requires understanding how the actions of governance are embedded in their locations.

2.5 Embeddedness

Economic geographers have deployed embeddedness as the focal concept in theories of regional economic development as well as theoretical efforts to explain cultural and social foundations of economic activities (Jones, 2008). According to Coe (2012), governance, power and value dimensions are characterized by the GCC/GVC and the GPN approach but embeddedness is a distinctive aspect of the GPN analysis (Coe, 2012) that has provided a different overview of global industries. Embeddedness has been defined as "multiple social, cultural, economic, political, historical, and personal relationships that situate actors in networks, regions, and social groups"(Weller, 2006, p. 1251). The concept of the embeddedness of economic action is widely used in institutional and social frameworks where this concept "has gained much prominence in economic geography over the last decade, as much work has been done on the social and organizational foundations of economic activities and regional development"(Hess, 2004, p. 165). Hess (2004) also argued that the embeddedness concept is theorized and used the concept from a "distinct spatial point of view"(p. 166) and paid attention exclusively to local and regional systems of economic and social relations in which "local embeddedness of actors leads to an institutional thickness that is thought to be one crucial success factor for regions in a continuously globalizing economy" (p. 166). As such, considering this aspect of the GPN approach is essential for an analysis of a global industry such as the Persian rug industry in which relationships in such industries are highly rooted in and dependent on the particular places.

The literature on embeddedness indicates that this concept can be traced in the studies of the economy to the contributions by Polany (1944) and Granovetter (1985). Polany emphasised non-market economies (societal embeddedness) by arguing that "the market is socially constructed and governed" (Hess, 2004, p. 169). In a further contribution, Granovetter stressed the role of concrete, personal relations and structures (Granovetter, 1985; Hess, 2004). Granovetter (1985) highlighted two dimensions of embeddedness as the actor's structural positions in their network (structural embeddedness) and the quality of the mutual relationships that generate trust and discourage malfeasance (relational embeddedness) (Granovetter, 1985; Hess, 2004). The network of interpersonal relations in a specific social structure is the centre of some previous research on embeddedness that Bair (2008) called "more proximate levels of analysis"(p. 347), or what Hess (2004) called "over-territorialized conception of embeddedness"(p. 174).

By challenging the above implications and issues, further contributions expanded the embeddedness concept in the areas of cultural and institutional contexts in the network structure between actors (Hess, 2004; Levy, 2008; Tallontire, 2007). However, to avoid a more complex understanding about embeddedness, Hess (2004) suggested that by answering the question of "who is embedded in what?"(p. 167), comprehensive and more clarified aspects of embeddedness are revealed. Thus, scholars have distinguished different dimensions of the embeddedness concept involving a variety of classifications and typologies.

One of the first contributions that extended Granovetter's work was the classification of embeddedness by Zukin and DiMaggio (1990) into four dimensions involving cognitive, cultural, structural, and political embeddedness (Hess, 2004; Weller, 2006). Beckert (2003) proposed a similar

classification in which embeddedness is defined as "social, cultural, political and cognitive structuration of decisions in economic contexts" (p. 769). One of the main additional elaborations in this way from industrial marketing literature was the work of Halinen and Törnroos (1998) who provided six types of embeddedness: social, political, market, technological, temporal and spatial (Hess, 2004). Further typologies in the embeddedness literature can be found as regulatory embeddedness by DiMaggio and Powell (1983), normative embeddedness by Miller (1981) and cognitive embeddedness by Miller (1981) and Oliver (1996) (Raskovic, 2014).

However, it is believed these classifications "might contribute to the fuzziness of the concept" (Hess, 2004, p. 172) and these different aspects of embeddedness overlap in "varying relevance, weight, scale, and scope" (Weller, 2006, p. 1251). For instance, Hess (2004) argued that structural and political embeddedness from Zukin and DiMaggio's (1990) typology are the same phenomenon, namely, 'the relations of actors' and it is not necessary to separate the harmonious and tense types of relationships into two different types of embeddedness. Such classifications with more and more forms of embeddedness has become confusing (Hess, 2004).

2.5.1 Threefold classification of embeddedness

Hess (2004) argued that such elaboration has some problems; for instance, he believed that technological embeddedness departs from the common ground of the embeddedness definition and/or market embeddedness is temporal in social relationships of particular actors. He mentioned that such arbitrary classifications of embeddedness are not able to "construct a convincing typology of embeddedness"(p. 173) and, as a result, are not necessary to be

added in the embeddedness literature. Instead, Hess (2004) believed that more spatial and place 'connotations and conditions' of embeddedness should be adopted in the concept of economic geography.

In his argument, Hess (2004) proposed that economic actions are inherently spatial and actors in global markets are not just bounded locally; rather, their interactions are from the "historical process of embedding which involves an interaction between the specific cognitive, cultural, social, political and economic characteristics of a firm's 'home territory'" (p. 173). In this way, Hess proposed that by accepting that economic action is grounded in 'societal' structures between both economic and non-economic actors, three main dimensions of embeddedness are *societal*, *network*, and *territorial* embeddedness. Table 1 shows examples of the classifications of embeddedness.

A short definition and concrete examples of each type of embeddedness is provided in the review of the literature on each below:

Societal embeddedness is related to the societal background (cultural, political, etc.) or 'genetic code' of actors which is formed by the social and institutional contexts of their origins, and impacts on their actions and their relationships (Hess, 2004; Hughes et al., 2008). This aspect of embeddedness refers to the importance of the historical, cultural, and social characteristics of actors' origins (Morris & Staritz, 2014) and the impact of a firm's home country (Niewiadomski, 2014) .

Network embeddedness unpacks the relationships between actors in a value chain regardless of their dependencies on particular places or cultures (Henderson, et al., 2002), as well as emphasises specific forms of connectivity (Morris & Staritz, 2014) and "can be regarded as the product of a process of

trust building between network agents" (Hess, 2004, p. 177). One of the major issues in the network embeddedness' definition is the role of network relations within a pre-defined and trusted network.

Table 1- Examples of classifications of embeddedness

Year	Author(s)	Theoretical ground	Classification
1944	Polany	Anthropology	Social embeddedness
1985	Granovetter	Sociology	Structural and relational embeddedness
1990	Zukin & DiMaggio	Sociology	Cognitive, cultural, structural, and political embeddedness
1998	Halinen & Törnroos	Industrial marketing	Social, political, market, technological, temporal and spatial embeddedness
2003	Beckert	Economic sociology	Social, cultural, political, and cognitive embeddedness
2004	Hess	Economic geography	Societal, network, and territorial embeddedness
2005	Granovetter	Sociology	Social networks, culture, politics and religion embeddedness
2005	Yeung	Economic geography	Relational embeddedness
2006	Liu & Dicken	Economic geography	Obligated and active embeddedness

Hess (2004) stated that:

> Network embeddedness can be regarded as the product of a process of trust building between network agents, which is important for successful and stable relationships. Even within intra-firm networks, where the relationships are structured by ownership integration and

> control, trust between the different firm units and the different stakeholders involved might be a crucial factor (p.177).

One important issue in network embeddedness is the attention to the role of state as an important actor in which Smith (2015) believed that three dimensions of state are important in GPN framework. These are *state-capital interaction* that provides facilities to expand the accumulation opportunities in different scales; state-state relations which is create state alliance to pursue accumulation opportunities; and finally state-GPN accumulation strategies based on 'autonomous framing of state policy' in respect of international activities. Smith also argued that GPN analysis is required to consider the role of state in order to explain "the formation and restructuring of global production networks and strategies for accumulation in macro-regional contexts" (Smith, 2015, p. 291). In the Persian rug industry, state as an important actors have indirect impact on relationships between the main actors. The US sanction in past years affected different barriers for traders to export their products to different global markets. In addition, Iranian government's deregulation created positive and negative impacts on the relationships between actors such as increasing the opportunities in private section in different stages of rug production (released from governmental sections) as well as declining the governmental supports for actors (particularly weavers).

Territorial embeddedness represents the degree to which actors are anchored in particular places (Henderson, et al., 2002; Hess, 2004) in which the dynamics of these places affect the ability of actors to absorb, or constrain them to use, benefits from economic activities. The role of institutional, government and non-government actors in each particular place are important in this type of

embeddedness. Firms that are linked to their territories are 'entrapped' by a high level of territorial embeddedness (Belussi & Sedita, 2009), and according to Perkmann (2006), local firms have greater influence from territorial embeddedness (Perkmann, 2006). Hess (2004) also argued that these dimensions of embeddedness are interconnected.

Some scholars believe that this threefold embeddedness classification can make a bridge between the GPN and GVC approaches. For instance, Faulconbridge (2010) argued that the work of economic geographers and sociologists "might complement each other to develop a more sophisticated analysis of TNCs as embedded social communities"(p. 22). In addition, Morris & Staritz (2014) argued that embeddedness can affect the integrating firm ownership, end markets and upgrading dimensions. They argued that:

> The threefold characterization of embeddedness formulated by Hess (2004) is useful in creating a bridge between the GVC and the GPN frameworks in respect of integrating firm ownership, end markets and upgrading dimensions (p. 245).

For the present research, the threefold classification by Hess (2004) is used to evaluate how embeddedness provides opportunities and also creates constraints in the relationships between actors in the Persian rug industry. In particular, this research explores how different governance types are formed in specific regions in terms of the impact of embeddedness on enhancing or limiting coordination mechanisms in the Persian rug GVC. Additionally, this examination provides a basis for considering how upgrading opportunities can be identified through the linkage of embeddedness-coordination via the possibility of forming new GVC types in all other regions in the Persian rug

GVC; that is, to what degree can successful modes of governance be 'exported' from one region to another.

Conclusion

The aim of the present research is to provide a new linkage between the GVC and the GPN by investigating the role of embeddedness in shaping governance mechanisms. This linkage can address some concerns about both approaches. As such, in line with recent calls for the study of the linkage between GVC and GPN to enhance understanding of the global market engagement of firms, regions and nations (Neilson, et al., 2014) and particularly the linkage of different types of embeddedness in the dynamics of GVC (Fold, 2014; Morris & Staritz, 2014), the result of the interrelation of embeddedness types in the shaping of specific governance types will be investigated. In this way, each region in the Persian rug industry has different combinations of interrelated embeddedness (for providing opportunities and creating constrains) and potentials for forming specific types of governance.

Chapter 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter addresses the justification for the research methodology, the research design, interview planning and procedure, sampling technique, data collection, and data analysis.

3.2 Justification for the research methodology

In this research, an exploratory, qualitative, case study design is undertaken to capture the nature of phenomena and extend the theory to the context and industry (McNabb, 2002). Through a multiple case study design, different and

important regions in the rug production in Iran were investigated to explore the coordination of the Persian rug GVC. The qualitative study was designed to acquire the key actors' opinions with primary data collection based on interviews of experts within the industry as well as industry data and documents where these were available.

The qualitative research method was employed because qualitative approaches can explore the factors that are essential in the relationships between actors in the Persian rug GVC that cannot be captured by quantitative methods. Despite potential issues regarding subjectivity, (Silverman, 2013), the depth of information from qualitative research which is more advantageous for the topic of this study than a quantitative design can provide.

Research on GVCs must necessarily unravel a variety of behaviours of actors in the GVC and has a strong emphasis on examining the processes of interaction among firms as pointed out above. As a result, a qualitative method is more appropriate for the aim of this study which is supported by the literature where it has been suggested that GVC/GPN research tends to use qualitative methods with a strong preference for interviews with key actors (Coe et al., 2010; Hess, 2010).

3.3 Research Design

To explore the role of embeddedness in coordination in the Persian rug GVC, appropriate sources of data should be selected. Because the rug production is regionally distributed in Iran, the context of the Persian rug industry is appropriate for multiple case studies. For the context of the present research, among all regions within Iran, three well-known and branded regions were

chosen: Isfahan, Tabriz, and Qom. More detailed explanations of these branded and famous regions are provided in the next chapter.

The selected regions are historically important in the Persian rug industry. However, some of the regions other than those selected have halted or downgraded their rug production in recent decades and have not operated on a scale that is significant in global markets. To determine the products and regions that operate at scale in the Persian rug global value chain, the Hamburg port and three major provinces were selected, based on information was sought from the INCC (Iranian National Carpet Centre) and also from interviews with Iranian traders in the global hub of the handmade rugs.

The provinces of Isfahan, Tabriz, and Qom are important in the Persian rug GVC for several reasons. First, each region has a character that has made them unique in the industry and global markets. The Isfahan rug industry has a specific model of making rugs based on using specific wool types and colours, and the symbols and patterns that are unique in rugs from this region. These elements are imitated in some other regions as well (such as the regions of Kashan, Naeen within the Isfahan province and also some remote province such as Mashad).

The amount of production and the method of making a large amount of perfect rugs in Tabriz, and also the very high quality of silk rugs in Qom are the key feature of rugs from these regions. Each of these regions with their unique characteristic makes them different in terms of providing relevant multiple case studies for researching the coordination mechanism in the GVC.

Second, based on INCC data, the share of rug export value from these regions is more than 76% of all rug export value from Iran. Table 2 represents the export share of rugs to the global markets by these three regions in 2012.

Table 2- The value of rug production in the regions of Iran in 2012.

Regions	Share of export revenue	Percentage of exports
Isfahan	100 USDM	18%
Tabriz	180 USDM	33%
Qom	137 USDM	25%
All other regions	132 USDM	24%

Source: (Iran National Carpet Centre, 2014)

Third, the methods of coordination and linkage between the main actors differ within each of these three regions due to regional variation in history, and culture. This is the key criterion for the research where the aim of the study is to explore different coordination mechanisms in different regions based on distinct regional elements. As a result, these three regions with their different regional characteristics provide useful locations for data collection. In addition, initial enquiries suggested that there was regional variations in the processes associated with embeddedness, and that these may have differentially impacted on the coordination of the chain in each region.

The above features of the three regions suggest that they represent a suitable representative sample of regional case studies to address the research

questions. Each regional study covers specific types of relationships between weavers who are the suppliers and the producers who are the lead firms in the in the Persian rug GVC. The research questions for the present study are outlined below according to the explored gap in the literature and the features of the case studies within the context.

3.3.1 Research Questions

In this research, the following questions are addressed based on the research design.

R.Q: To what extent does Gereffi et al.'s (2005) framework provide a basis for understanding how the Persian rug GVC is coordinated in different regions?

RQ1- In what important ways do the coordination mechanisms within the Persian rug GVC differ across regions?

RQ.1a What production mode have emerged in each region?

RQ.1 b To what extent can the three determinant variables predict the governance of the Persian Rug GVC?

RQ.2- What is the role of embeddedness in shaping coordination mechanisms in the Persian rug GVC?

RQ.2a What is the role of embeddedness in shaping different production modes in the Persian rug GVC?

RQ.2b What is the role of embeddedness in shaping specific governance types in each production mode?

RQ.3c How does embeddedness explain the variation of governance types within each production mode?

3.4 Interview planning and procedure

Semi-structured interviews were the main sources of data. This method provides some fundamental benefits. One major benefit is that during interviews, new questions can be added in the process of saturation and probes for additional information as the interview revealed information that might not have been included in the original interview protocol.

In-depth interview questions were designed to capture a variety of information from different actors. The potential interviewees were selected from the chain and non-chain actors in the Persian rug GVC. The main group of interviewees included in this study were the chain actors involving producers in different regions in Iran and also Iranian traders in the port of Hamburg, Germany.

3.4.1 Sampling

According to Marshall (1996), the size of a sample "is determined by the optimum number necessary to enable valid inferences to be made about the population" (Marshall, 1996, p. 522). This issue is explained by the notion of saturation in qualitative research (Medin et al., 2004; Morse, 1995, 2015). Saturation is defined as data adequacy (Morse, 1995), which means investigators should collect data until no new data is gathered. In addition, saturation calls for a method of estimation of the size of the sample based on the richness of data rather than the quantity of information. For the present

research, an initial quota was used, but during the analysis process, follow-up telephone interviews were used to clarify information and resolve discrepancies in the data.

For traders in Hamburg, interviewees were recommended by the union of traders in Hamburg. For each region, an INCC's representative recommended specific producers who were willing and able to participate in the research with a good level of information for answers to the research questions. So, in Isfahan, Tabriz, and Qom, the main interviewees were producers, and then interviewees from the chamber of commerce and universities were undertaken. The producers in the three regions were the key actors in the Persian rug industry who were the lead actors in coordination of the chains/networks.

The number of participants was determined by some elements. While scholars believe that several qualitative research have the mean sample size of 31 (Mason, 2010), it has been suggested that a multiple of ten interviewees are applicable in PhD research (Morse, 2015). However, the above claims are difficult to follow and for the present research, quota sampling was used and because interviewees were from different groups of actors in the Persian rug GVC, around ten interviewees were determined for each group of actors for the optimum size of sampling, and further interviews were conducted to ensure the achievement will be saturated.

In this way, all ten large traders and six further traders in Hamburg were in the interview plan; and for each regional case, ten interviews were selected. However, in Tabriz, the procedure for obtaining approval for interviews was not completely achievable because of the limitation of making contact with specific individuals to seek their cooperation. In regard to saturation,

interviews with non-chain actors were also conducted to increase the likelihood of discovering an 'infrequent gem' (Morse, 1995) to make an understandable conceptual model.

Purposeful sampling was also used (Marshall, 1996). According to Tongco (2007), the purposive sampling (or judgment sampling) technique is "a type of non-probability sampling that is most effective when one needs to study a certain cultural domain with knowledgeable experts within" (p. 147). For this aim, interrelated references to identify the adequate interviewees were selected in which the INCC in Tehran had some direction and contacts with the union of traders in Hamburg[5]. There were more than 500 producers who were the main actors in this industry in the three regions. To select the participants who had good knowledge about the industry and global markets, further information was obtained from the traders in Hamburg and the INCC. The information about producers was also supported by the chambers of commerce in the three regions. Sixty-four interviews were undertaken with different actors in which 32 interviews were with producers as the lead actors in the Persian rug GVC, which are shown in Table 3.

3.4.2 Interview protocol

The first set of contacts with the initial sample list was successful, from which 80% responded positively and agreed to be interviewed. However, during interview, some interviewees did not provide responses which were useful to the research. They addressed non-relevant issues, usually provided facts after each question, and tended to finish the interview session after a few minutes. So, because of the poor quality of the information that they provided, they were

[5] This union and the role of this institution in the rug industry will be explained later.

eliminated from the data analysis. In this regard, four interviews were eliminated: one interviewee in each region and one from the Hamburg port.

Table 3- The number of interviewees with the chain and non-chain actors

Chain Actors	Number of interviews
Traders in Hamburg	Large: 11
	Small: 6
Producers in Iran	Isfahan: 13
	Tabriz: 7
	Qom: 12
Wholesalers in Tehran	2
Non-chain actors	
INCC in Tehran	3
Chambers of commerce in the regions	3
Universities in the regions	7
Total interviews	64

In order to answer the research questions, the interviews with different actors were developed by several themes. Two major themes of the interview questions were about the production mode and three variables from the GVC framework. There were different classes of interviews that asked some different questions. The first group were the suppliers that included producers and some wholesalers in Iran. They were asked about the ways that they designed and made rugs with a different quality and in different quantities, their interactions with different buyers, the difficulties in terms of global activities, their

relationships with weavers, their source of power, and similar questions to provide a basis for expansion of major debates.

The second group of interviews was with traders in Hamburg. They were asked to explore their interaction with producers and wholesalers, their interaction with global buyers, their priorities in this industry, the level of their power in relationships with other actors, and the competition in global markets.

The other groups of actors who included cooperatives, universities, and INCC's representatives were asked similar (and related) questions as well as their supports within the industry, such as training courses for weavers and suppliers, government plans for the rug industry, and knowledge enhancement from universities. These questions are shown in Appendix 1.

3.4.3 The process of the interviews

All interviews were in the Persian language and while the majority of interviews were voice recorded, some participants did not allow a voice recording and, therefore, interview notes were taken. The work places of the producers were quite calm without any noise disruption; however, in some cases, sounds from the crowded streets interrupted the interviews. It seems that using a voice recorder provided some barriers and may have prevented the participants from speaking frankly. They usually asked if it was required, and if the voice recording could be switched off (which occurred for three interviewees). Based on the inquiry, they were concerned that if they gave important data, such information was vital for the competition in the market. However, the average time of each interview was considerably short (about 15 minutes).

The order of the interviews with the main actors/participants was with the traders in Hamburg, then the producers in Isfahan, Tabriz, and Qom and the key non-chain actors. Each of these groups had a different procedure in action.

Traders in Hamburg: Hamburg port is the centre of the rug supply to a variety of global rug markets. Interviews with the major actors in this place provided a basis for selecting the regions in Iran (as explained before), the choice of participants, provided major criteria for the regional interviews, and also some main points about the coordination mechanisms within the Persian rug GVC. At the time of the study, 17 businesses had relationships with global buyers in Hamburg. Based on information from the union of these traders that separated them into large and small scale participants in global markets, all 11 interviews with the major businesses and 6 interviews with the small suppliers were undertaken in a month in Hamburg. Interviews took place in traders' offices or their shops in different places and times. The Hamburg traders' interviewees were coded as HT (1-17).

Isfahan: Interviews with traders in Hamburg showed that rugs from Isfahan are very important in global markets. The majority of the participants (producers) were recommended by the INCC's representative, which is located in the department of the Ministry of Industry, Mining, and Commerce of Iran. In Isfahan about 21 producers were branded, had global activities, and are famous within the industry. The initial aim was to access all of these producers to reduce any bias in the data collection. However, some of these producers have a good source of experience and knowledge about the global markets as well as the local industry. As a result, their participations help to refine and ask the prior questions in later interviews.

During each phone call to producers, the time for the interview was organized as well as the venue which for all interview except one, was in the producers' offices, and one was in the producer's home. A variety of relevant topics were covered by these interviews, including relationships with other actors, power relations, governance and coordination. Thirteen interviews with producers were undertaken in 8 days in Isfahan. These interviewees were coded as IP (1-13) for the Isfahan producers. Also, one interview with a member of the chamber of commerce, and four interviews in the Isfahan University of Arts were employed. These interviewees were coded as ICC, 1 for Isfahan the chamber of commerce and IU (1-4) for Isfahan University.

Tabriz: Based on the opinions of traders in Hamburg, the Persian rugs from the Tabriz region was the second important regional branded rug in Iran. Because of some difficulties in convincing the producers in Tabriz, both the chamber of commerce and the INCC's representative had some initial contacts with the recommended producers and the time of the interviews was fixed. Almost all producers had a rug shop in the Tabriz grand bazaar where interviews were undertaken. Similar topics, such as relationships with other actors, power relations, governance and coordination were the main parts of the interviews. Six interviews were undertaken with the producers in Tabriz which were coded as TP (1-6). One interview with the representative of the union of rug weavers in the village area in Tabriz was coded as UR, 1. This interviewee was in the group of producers. Also, one interview was undertaken in the Tabriz Chamber of Commerce which was coded as TCC, 1. In addition, two interviews in the University of Islamic Arts in Tabriz were undertaken and coded as UT (1,2).

Qom: Almost all interviewees in Hamburg believed that the Persian rugs from the Qom region were the most valuable and expensive rugs. Access to producers in Qom was from the INCC's representative who provided a list of 15 major producers, this cooperation made the connections with them easy. All of these producers were branded leaders within the industry, had considerable experience with exports to the global markets.

The workplace of the producers in Qom is a whole building with the main tools of looms, raw materials and fibres, and also designs being kept in their workplace. Questions on their relationships with other actors, power relations, governance and coordination were asked during the interviews. Twelve interviewees were selected and were coded as QP (1,12). One interviewee in the Qom Chamber of Commerce was employed and coded as QCC,1.

3.5 Data analysis

Qualitative content analysis was employed to analyse the data from interviews (Elo et al., 2014). Qualitative content analysis categorized data "using categories that are generated, at least in part, inductively (i.e., derived from the data), and in most cases applied to the data through close reading" (Forman & Damschroder, 2008, p. 40). In this way, the main data was typed into Word documents in the Persian language and coded in English, primarily into NVivo 10 software. NVivo is one of the valuable software used in the qualitative approach for classifying and coding data in several codes just with one typed data (Bazeley & Jackson, 2013; Walsh, 2003).

One major issue during the writing of the thesis was the transcription and translation from Persian to English, which were quite time consuming. As such,

only quotations were used in the data analysis, are translated to English. The major issues, such as relationships with weavers, managing the chain, power relations, and regional elements were coded into NVivo and expanded into detailed concepts in the thesis.

Table 4- Themes from the qualitative content analysis used in NVivo

Used themes (derived for each region)	Definition of the codes	Related to the research questions
Production mode **Different types for each region**	The way that led producers to organise resources to make rugs	RQ1-SQ1 RQ2-SQ1
3Cs: **Complexity** **Codification** **Capability**	The level of the three variables from Gereffi' et al.'s (Gereffi, et al., 2005) framework	RQ1-SQ2
Governance types **Possible hybrid types**	Five types of governance based on Gereffi'et al.'s (Gereffi, et al., 2005) framework	RQ1-SQ2 RQ2-SQ2
Lead firms: **Producers** **Traders**	The actors who have an important role in coordination of the chain	RQ1
Suppliers: **Weavers**	All product suppliers in this industry are weavers	RQ1
Embeddedness: **Gender** **Cultural elements** **Historical elements** **Location** **Network linkages**	The regional characteristics which are important in coordination mechanisms	RQ2
Power: Buyers' power Suppliers' power	The degree of explicit ability of actors to drive the transactions within the chain	RQ2

From a variety of different topics gathered from interviews, the main ideas around the coordination mechanism and embeddedness issues were utilised in

the present thesis. However, a rich database was available from the interviews to explore the different key concepts around the GVC/GPN for the future research.

The themes that were used in NVivo are depicted in Table 4. These are the initial codes and during the analysis of the results that were expanded within the structure of the research in different parts of each case study and discussions.

Inconsistencies in data were coded under a node to explore if they described a new or specific opinion from the interviewees. These data were reviewed again to check if they were related to a relevant topic. The final action was to ignore the inconsistent data. Also, for the embeddedness issue, such data was important in order to make arguments about the integrated aspects of the embeddedness issues (Hess, 2008).

3.6 Strengths and limitations

This study has some strengths and some limitations. Conducting interviews with the lead actors and experts within the GVC provides a pioneering database about the Persian rug GVC and governance mechanisms for an industry which is coordinated by local actors. The data was collected based on the selection of the possible interviewees from famous and important actors. Hence, the results from this study are unique for the industry and provide guidelines for similar industries in LDC economies.

However, participants had some biases about different issues during the interviews, which are from their individual experiences as well as specific conditions (embargos against Iran) in the economy at the time of the interviews.

3.7 Ethical considerations

QUT research ethic clearance 1200000660 was obtained to ensure safe research and prevent potential harmful consequences for the interviewees in this research. Interviewees completed consent form which is contains some information about the research team, the aim of research, the risks and benefits from the research, and the other needed information. Ethical clearance from the QUT Ethics Committee and the consent form is in Appendix 2.

Summary

In this chapter, the research methodology of the present research was discussed and justified. It described and explained the design of the research process, and the data collection, and analysis.

Chapter 4

the *Persian rug GVC*

Introduction

The purpose of this chapter is to identify the structure of the industrial context of the present research: the Persian rug GVC. In the first section, the review of the structure of the Persian rug GVC is provided. In this section, the main global markets, regions, and actors in this GVC are described. The aim of Section 2 is to explain how a Persian rug is made where the value-added activities in the process of rug making are examined.

4.1 The structure of the Persian rug GVC

Iran is one of the major countries to produce handmade rugs and carpets that for centuries have been sold to a variety of markets worldwide, and making these products is a part of its culture and history. There are some differences between carpets and rugs. A **carpet** is a heavy woven product to cover all or most parts of floors. It has a medium to low quality, is a large size (usually larger than $12m^2$) and is made with rough wool. Carpet is suitable to cover large living areas, and before new artificial materials were invented, it was the main commodity for furnishing and covering floors.

On the other hand, a **rug** is a smaller, high quality (premium thin wool and/or silk), knitted product, which is suitable for covering a small area or even as a wall hanging. Moreover, a rug is a luxury product and an investment because Persian rugs are potentially more valuable some years after their production (more attractive after 4-10 years)[6]. Technically, rugs should be hand-woven with more precision and careful attention than carpets, using raw materials and designs. In addition, it is possible to produce carpets in machinery factories, but if a rug is made using a machine it is not a rug, rather it is small, machinery-made carpet.

In Iran (and also in global markets), carpets and rugs are not separate terms and are used interchangeably. In addition, all types of carpets and rugs are made in Iran; by hand and machine; medium and high quality; and small to very large. The classical handmade rug is the main production from the Persian rug industry and the other products are not on a scale that is significant in

[6] Some goods are precious after wearing out and become an antique (e.g. some musical instruments, candlesticks, jewelry, stones, and rugs).

global markets. Thus, despite the recent demand for other types of rugs (such as Gabbeh), this type of production - the classical rug - is the main target of the present research. Figure 8 shows the different types of covering-knitted products in this industry.

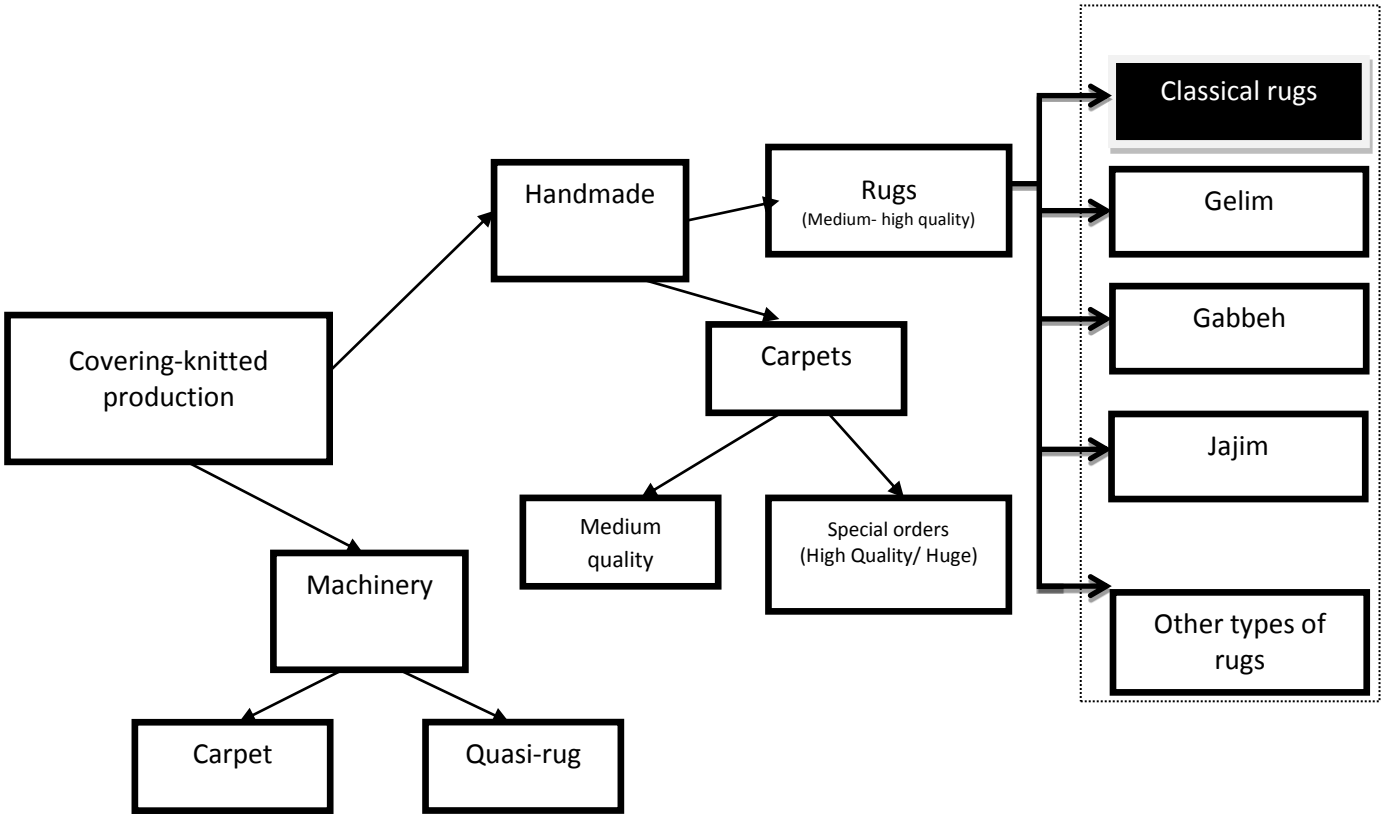


Figure 8- The variety and kind of covering-knitted productions in Iran.

The remainder of this chapter is focused on classical Persian rugs. To review the structure of the Persian rug GVC, this section of the chapter explains three debates involving the main global markets, regions, and actors in this GVC.

4.1.1 Rug production and the main global markets in the Persian rug GVC

This section discusses the volume of rug production in Iran, the export rate of Persian rugs and their distribution to different global markets, and finally, the key Persian rug competitors.

4.1.1.1 The volume of rug production in Iran.

In 2013, around 3 million square meters of handmade rugs were produced in Iran, of which more than 60% were exported to global markets (Iran National Carpet Centre, 2014). The review of handmade rug production in Iran over the last 40 years shows that the production of this commodity decreased over the past decade.

These statistics also shows that rug production in Iran has declined twice in the period of 1981-2013. Figure 9 shows this decrease. In the time of war from 1981 to 1987 rug production declined because of infrastructure problems and the new wave of reconstructions after the Iran-Iraq war.

The second decline from 2003 to 2013 was related to international political sanctions, which provided financial difficulties and banned markets for rug exports from Iran.

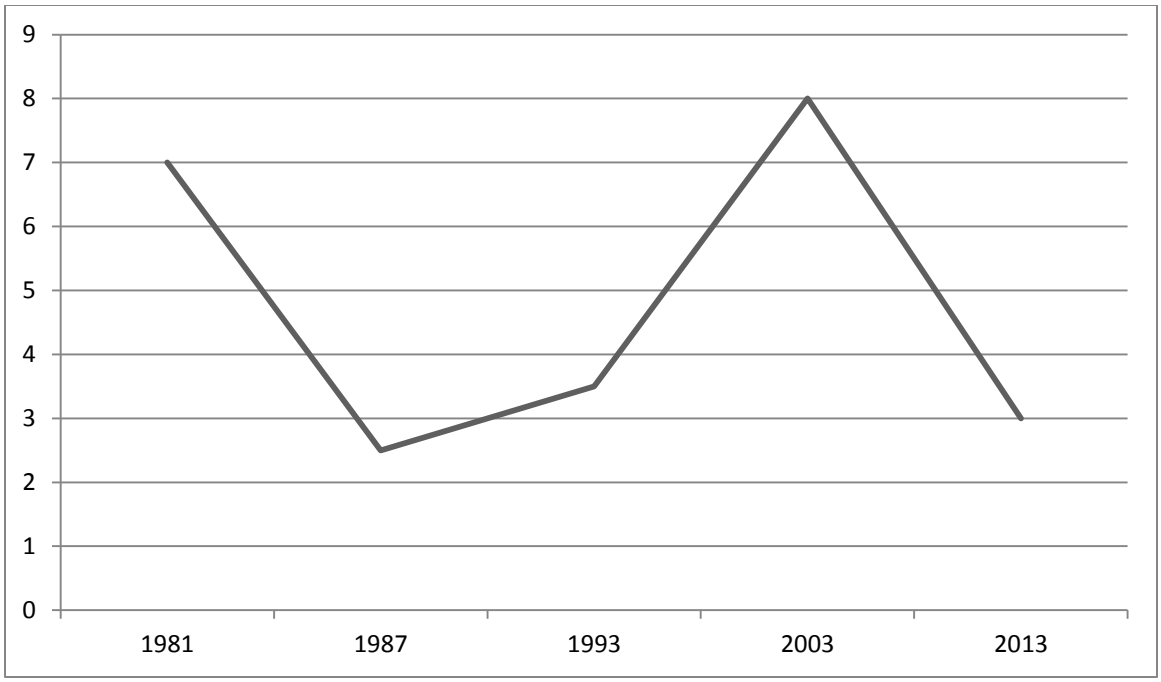


Figure 9- Handmade rug production in the period of 1981-2013 (Iran National Carpet Centre, 2014).

As such, problems external to the industry caused the first rug industry decline. In contrast, this research found that in recent years some internal factors within the industry have changed the number of weavers, style of rug production, and the focus on different markets. These issues are explained throughout the thesis.

4.1.1.2 *Persian rug exports*

Figure 10 shows the rate of rug exports over the last 40 years. As this figure shows, the highest export rate level of the rug industry in Iran was reached in 1994. In addition, Figure 11 shows the rug exports volume in tonnage over the last 40 years. This figure shows that the amount of rug production and the value from this industry are related but there have been challenges in achieving adequate quantities of rug production in recent years. A close examination of the period of ten years (2003-2013) shows that the revenue from rug exports

decreased in from 2011 to 2013 (see Figure 12). This most probably resulted from financial barriers from political sanctions.

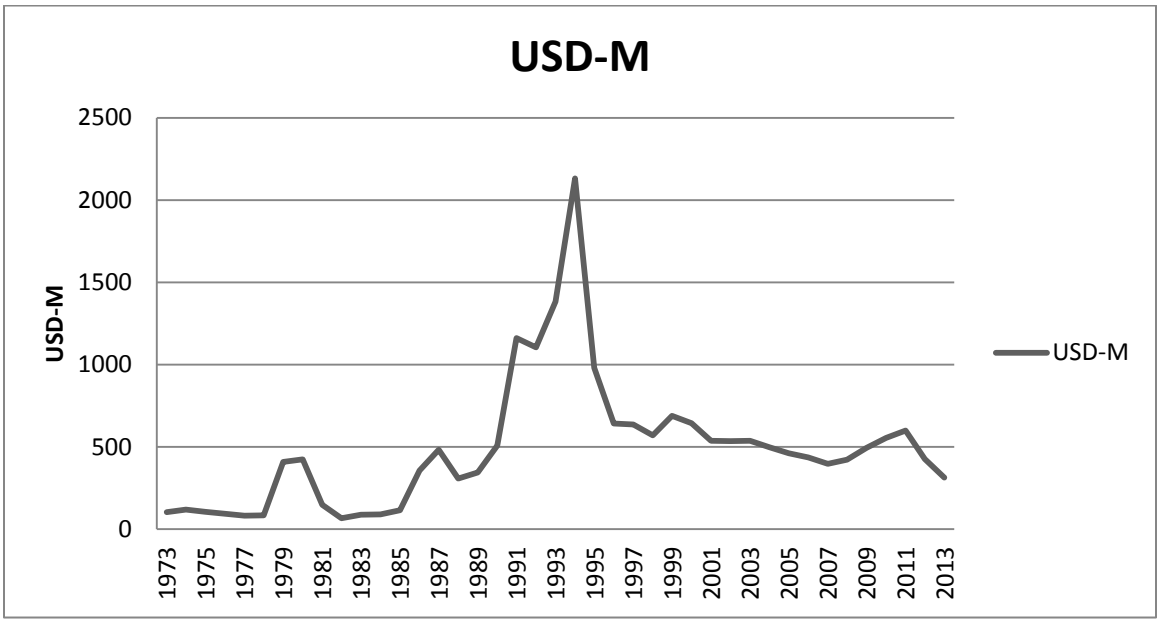


Figure 10- Iran rug exports revenue (in US million dollars) from 1973 to 2013 (Iran National Carpet Centre, 2014).

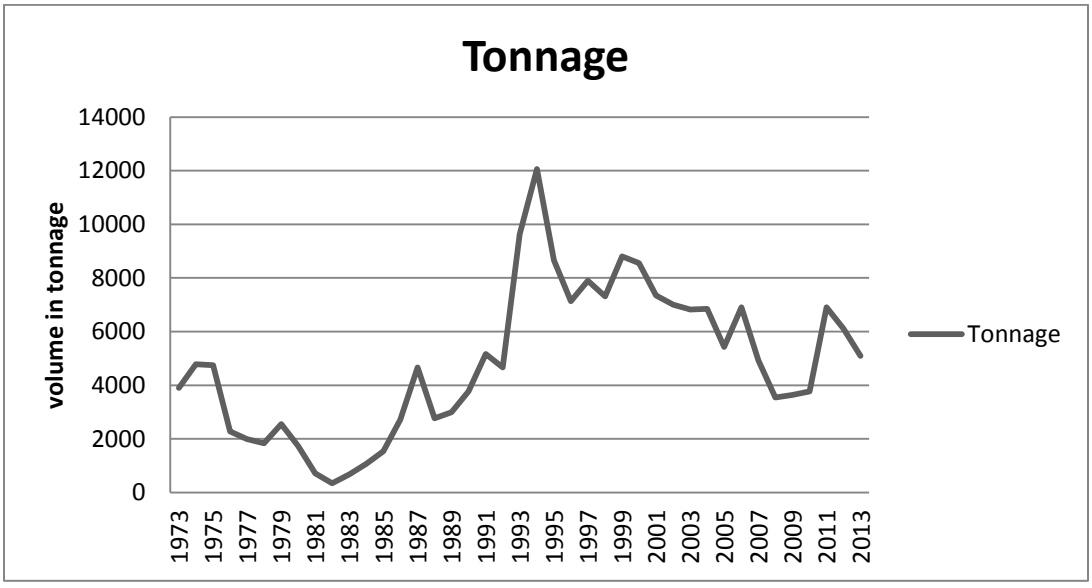


Figure 11- Iran rug exports volume (Iran National Carpet Centre, 2014).

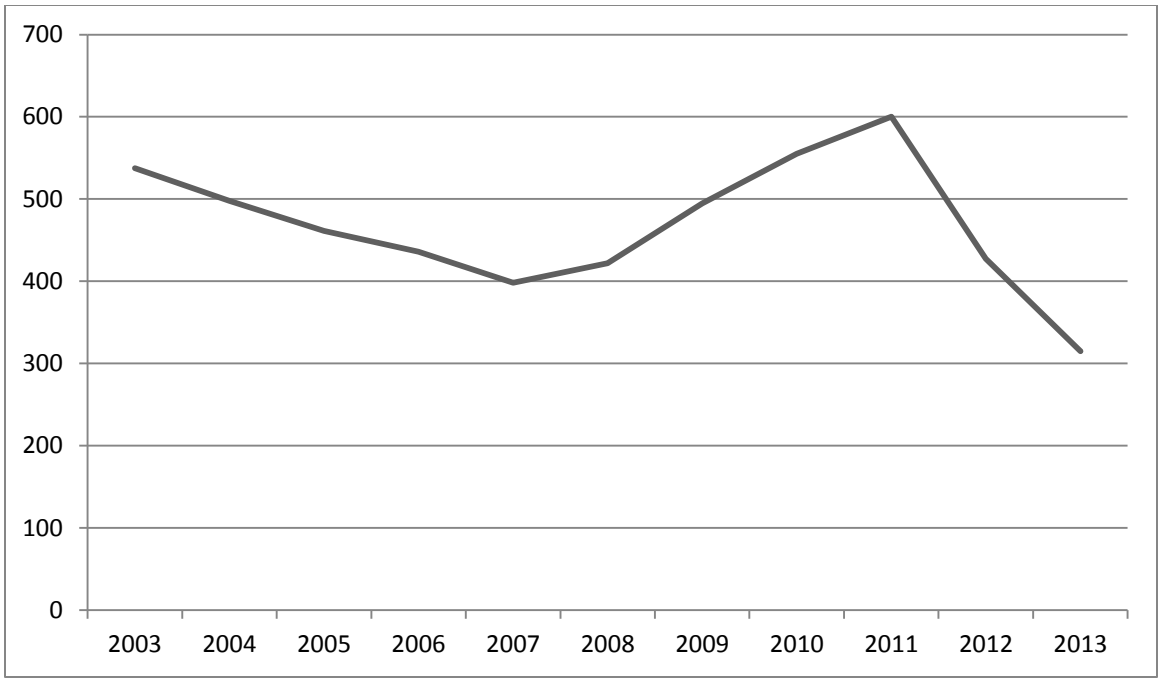


Figure 12- Iran rug export in the decade of 2003 to 2013. Source INCC

These descriptive statistics show that rug exports need specific attention from decision makers in order for Iran to maintain its superior performances in this industry in global markets.

Persian rugs are exported to many countries and the target markets in some countries are particularly important for the industry. Table 5 shows the value of exports to major countries. According to this table, Germany has the highest number of exports over the period from 2009 to 2013. This is because the centre of handmade rugs in global markets is Hamburg port in Germany.

Another important issue shown in this table concerns the changing end-markets of Persian rugs. For instance, in 2009 the value of exports to China was zero but since then China has been a small but steady importer of Persian rugs. Similar shifts for Pakistan and Afghanistan show that such moving to end-markets causes less competition. In addition, after political sanctions were

imposed in 2011, USA dropped from the second highest importer of Persian rugs to out of the list of importers.

Table 5- The value of exports to some major countries ordered for the 2013 data- in USD Million Dollar (Iran National Carpet Centre, 2014).

Country	2009	2010	2011	2012	2013
Germany	78.1	102.7	107.9	73.9	62.2
UAE	66.2	86.2	102.6	56.3	55.8
Japan	19.1	21.3	28.2	33.5	27.1
Lebanon	32.5	31.4	34.8	35.1	24.7
Italy	27.1	27.8	29.9	19.4	17.5
GBT	10.9	11.1	17.6	13	15.5
Pakistan	-	-	16.9	8.5	14
Qatar	10.9	19.1	24.7	29.4	9.3
Switzerland	15.3	17.1	15	17	7.7
Sweden	9.6	12.7	15	11.2	7.4
South Africa	5.1	6.8	7.3	9.8	7.1
France	7.5	9.5	8.7	5.9	6
Denmark	4.5	7.7	11.1	4.8	5.9
Kuwait	-	12.8	10.4	7.6	5.7
China	-	5.2	5.2	6.7	5.7
Afghanistan	2.7	2.7	6.5	6	4.3
Brazil	6.8	5.7	12.6	9.6	3.5
Australia	7.2	7.1	8.6	8.9	3.3
USA	81.8	7.5	-	-	-

4.1.2 The main regions in the Persian rug GVC

This section describes the regions in the Persian rug industry in Iran. Iran is the 18th largest country in the world in terms of area, which includes mountain, arid and semi-arid climates (see Figure 13).

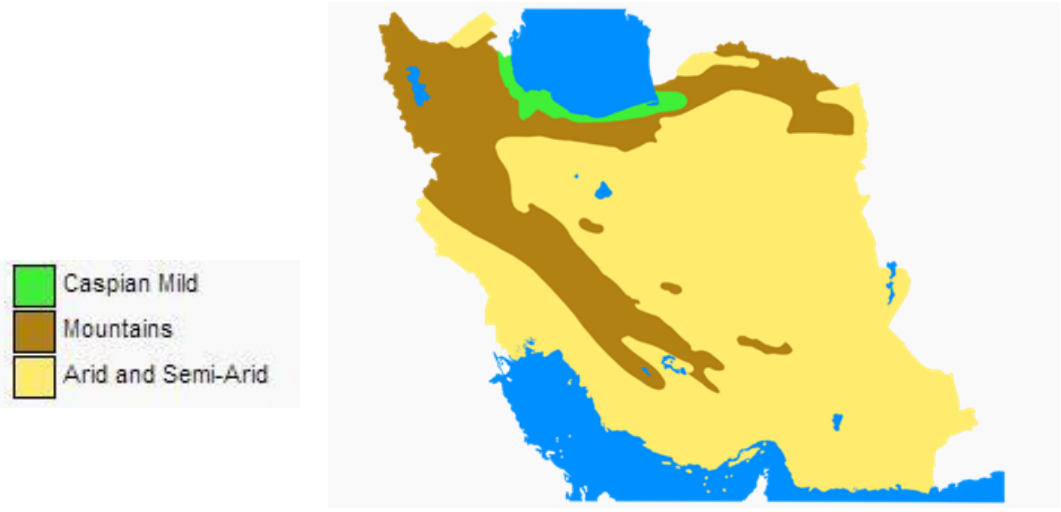


Figure 13- The climate of Iran.

This climate has a direct impact on rug production, which can be identified from the raw materials, colours, designs, and technical aspects of rug-making. For instance, weavers in desert areas use bright colours, such as khaki, yellow, and beige while those in mountain areas tend to use dark blue, dark red and dark green colours. In the three case study regions the climates differ: Qom is located in a warm desert; Tabriz is in a cold mountain; and Isfahan is on a moderate plain.

Iran is divided into 31 provinces and almost all cities and villages are involved in the rug production from low to high quality, and sell the rugs to the local and global markets. Figure 14 shows the various regions of the Persian rug industry.

Figure 14- Various regions of the Persian rug industry.

The provinces of Qom, Isfahan, and Tabriz (East Azarbaijan) that are in dark blue are the main regions for producing high quality and famous brands of Persian rugs and have a high level of exports and participation in the Persian

rug GVC. The present research focused on these provinces because of their role in this industry as the major and important regions in making rugs for global markets.

The green provinces of Fars, Kerman, and Khorasan, are the next most important regions in rug production in Iran. Compared to the blue provinces, the quantity of their products has decreased in recent years. The downgrading and/or their exit from the industry have some reasons, including a decrease in the number of weavers and changing demands in domestic and global markets.

The yellow regions are similar to the provinces in green but it is not known if they are have downgraded or upgraded production. Some small areas (cities or villages) are still large brand producers, and occasionally a nicely woven series of rugs is produced and made in these regions that are alive in the industry. Finally, in the white regions, a few productions/brands of rug-making are found that produce for the global and domestic markets.

Ideally, each province, or in some cases, each city has one special and overall brand by the name of region (e.g. Shiraz, or Esfahan). Tehran (red) has no particular production or brand, but due to its role as the capital city, it is the centre of economy in Iran. Therefore, many wholesalers, and government and central organisations are in this metropolis, and also the best quality rugs that are produced in other regions are transferred to Tehran. All provinces in this map have an overall design, colouring, and method of weaving which reflect the brand of rugs in these regions.

4.1.3 The main actors in the Persian rug GVC

This section explains the role of main actors in the Persian rug GVC. Approximately 5 million people are involved in the Persian rug industry directly (making rugs or materials for rugs) and indirectly (working on services and providing some requirements) (Iran National Carpet Centre, 2014). In other words, some are the chain actors and some are non-chain actors.

4.1.3.1 Chain actors

The most important chain actors in the Persian rug industry are producers, weavers, traders, and wholesalers.

4.1.3.1.1 Producers

Producers are the main and lead actors in the supply of rugs to global markets who have sufficient knowledge about raw materials, fibres, dyeing, designing, knotting, domestic and global demands, marketing, and social relationships. Almost each region or even each small territory and/or city has at least one famous producer. There are approximately 100-150 branded producers in global markets (HT ,5 [7]). Producers in Iran work with weavers and supply rugs for domestic and global markets or they are the bridge for the supply-base to buyers (see Figure 15).

[7] Hamburg traders

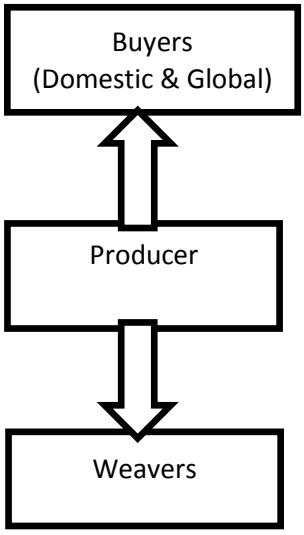


Figure 15- Producers and their relationships within the Persian rug chain.

Producers also link a variety of actors involved in the different stages of production in this industry. More than 90% of producers are from family businesses and are the new generation in this industry; and around 10% are new entrepreneurs (Iran National Carpet Centre, 2014). In addition, they are familiar with the demands from domestic and global markets. This technical and market knowledge has made them the most powerful actors in the Persian rug GVC.

Almost all producers have a special brand that is their name, and generally weave their brand's name on their rugs (particularly when their own designs are used). One important aspect of their brand is the regional part that highlights the quality of their products that is embedded in the regional roots. The branding of the Persian rugs is explained in a subsequent section of this chapter. Producers are divided into two specific groups based on their ownership. The majority of producers (explained above) are private actors who have established a small business in rug production. Also, some corporations,

cooperatives, and organisations are involved in this industry as producers. Two major institutional producers are a governmental corporation and some cooperatives in the Persian rug industry.

Carpet Corporation (Sherkate Farsh Inc.), established in 1934, is a corporation that aims to set standards in rug production, record the variety of designs, skills and techniques, and support weavers and producers and many other supportive duties. (see Figure 16).

Figure 16- Carpet Corporation's central branch and exhibition in Tehran (photos by Author).

This corporation has the goal of enhancing the standard methods of weaving, increasing the quality of production and preventing low quality production, and finally, supporting actors. Today, this corporation is one of the famous

brands in domestic and global markets, and each year it is one of the most important participants in the Domotex fair in Hanover, Germany (this international fair is the most important exhibition of the floor covering, rug and carpet industries in the world).

This corporation has representatives in each province and branches in specific cities to support rug production. It has 25 branches in production in various regions, covers more than 15,000 weavers and is a major producer. They had a branch in Hamburg port that was closed in 2007 but they still have an active representative in Hamburg. This corporation is able to handle big projects. For instance, the biggest carpets[8] in history were 5,700 m^2 for a mosque in Abudabi, UAE; another project that is making carpets for a mosque in Amman, Jordan is 4,343 m^2.

Despite the important role this government corporation has had in the Persian rug industry, it will be managed by the private sector in the next four to five years as a result of the recent governmental policy of deregulation.

Cooperatives: These producers are an autonomous association of actors (including weavers and producers) that have been established to support weavers mostly in rural areas. The union of these cooperatives have their own dyers, designers, and branches in each regional city. However, unlike producers, cooperatives are medium businesses with a good supportive role for weavers by providing fibres, loans and other financial supports, and insurance.

[8] Big rug

4.1.3.1.2 Weavers

Weavers are the major suppliers in the Persian rug GVC. Their skills in rug making are usually rooted to their traditions and from their ancestors. In many regions, rug weaving is an artistic occupation that is the second source of income for families. Historically, weavers have established a loom in their own home and made rugs in their free time over the course of a year. Some of these products are for their own use and also to have further income.

Weavers have a variety of different skill levels, with some being able to make very high quality rugs while others only low quality products. However, the number of weavers who can make rugs without direction by producers is not significant and usually producers supervise weavers to ensure they make good quality rugs. The relationships between these actors and producers are the main and significant interactions that determine the quality of rugs, the success of activities in global markets, and they impact on the overall condition of the rug industry.

4.1.3.1.3 Wholesalers

Wholesalers are business agents within markets. They are familiar with a variety of rugs and carpets and they are highly expert actors in selling and buying rugs in this industry. They work as brokers between retailers (or other wholesalers) and producers (or weavers). Most wholesalers are in bazaars in the cities of Tehran, Tabriz, Esfahan, Qum, Naeen, Shiraz, and Mashhad where the famous bazaars are located. Wholesalers buy rugs from producers, cooperatives or individual weavers and supply them to domestic and global markets.

4.1.3.1.4 Traders

Traders are the other important actors in the Persian rug industry and are located in Tehran, Hamburg, Roma, Tokyo, Dubai, and many other important cities; however, the most important traders have settled in the port of Hamburg (former free port buildings in the Spëiker Steit region).

As a result of setting up a free port in Hamburg by the West German government after World War II, Iranian merchandisers moved from Iran, London, and Istanbul to Hamburg around 1948-1954. This was a period of high economic growth in the West and North of Europe, and luxury goods like Persian rug were famous for rich people. After a while, Hamburg became the centre of trading the Persian rugs (and also handmade rugs). The chief buyers of Persian rugs were luxury stores in Western Europe and the USA and they referred to this port for their demands. In addition, after some years, traders from other countries, such as India, Pakistan, China, Turkey, Afghanistan, and Nepal moved to Hamburg because new, potential markets for them had emerged (HT,1).

After the Iranian revolution in 1979 and eight years of war with Iraq, the value of the Iranian currency collapsed (Statistical center of Iran, 2014) and, as a result, the price of Persian rugs decreased. Therefore, general retailers, such as Target, IKEA and other affordable retailers entered this profitable market and sold Persian rugs in their own branches. Because of increasing industry demand, after 1990 a huge number of wholesalers and inexpert persons moved to Hamburg and started supplying medium to low quality Persian rugs to global markets. The number of Iranian traders in 1997 was around 370 small businesses and individual agencies. The surplus of supply and low quality products, in some cases, changed the image of Persian rugs during those years.

Thus, the demand for Persian rugs decreased and new traders gradually left Hamburg. Today, around 70 traders remain in Hamburg, of which half are not fully active (HT,1). Figure 17 shows the decline of rug exports by these traders in Hamburg over the period of 1993 to 2013.

These traders are the link between the internal and external stakeholders of the Persian rug industry. They buy rugs from producers, wholesalers, cooperatives, and individual weavers and sell the rugs to global markets via general retailers, including IKEA Wal-Mart, and Target. In addition, their major customers include specific and professional retailers (or wholesalers) that include Kingfisher, Lutz, Dömane, Metro Group, Quelle, Heine, Otto, Dodenhof, Neckermann, Home Retailer Group, Porta, Steinhoff, and Hofner.

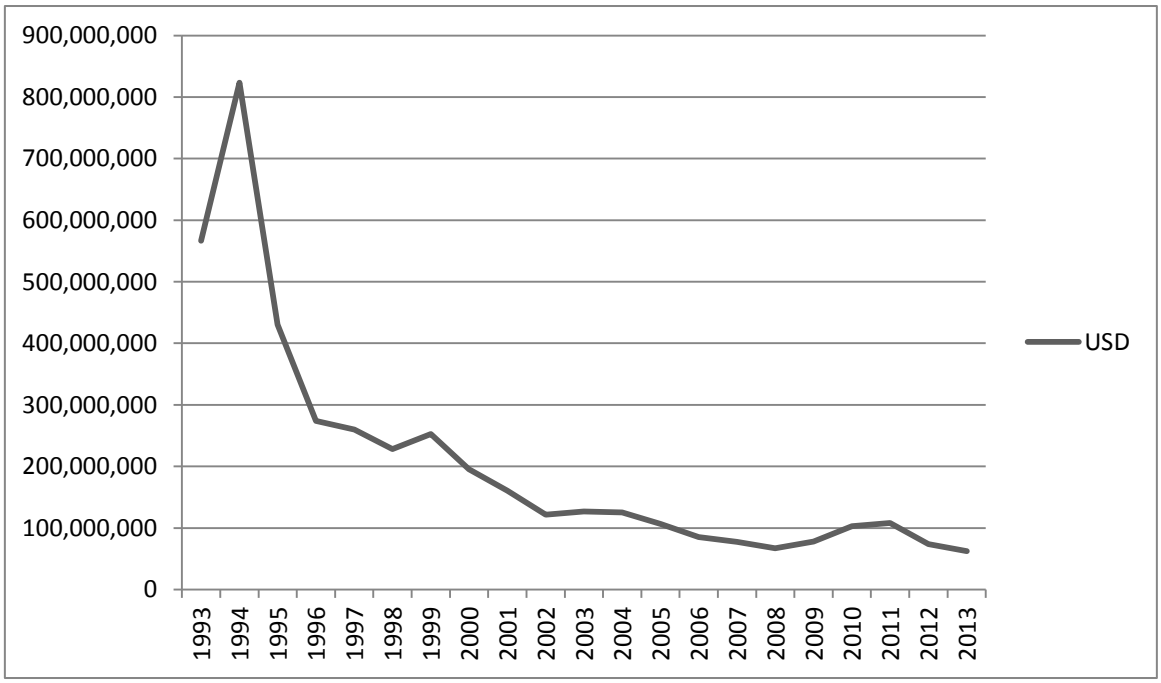


Figure 17. The decline of rug exporting by Hamburg traders from 1994 to 2013. (Iran National Carpet Centre, 2014).

This section described the main factors that are important in rug markets. The next section explains how the Persian rugs are made in different value-added stages.

4.2. The value-added stages in rug production (how the Persian rugs are made).

The process of rug production is shown in Figure 18. These GVC activities in Figure 18 highlight that all stages of rug production need a variety of skills.

The main activities based on this chart are explained in the rest of this section. To analyse and evaluate the relationships of the GVC issues, a full description of all processes in rug production will be helpful. A Persian rug is made in three stages: Pre-weaving activities, weaving (knotting), and finishing activities. After a rug is made, selling and distribution in domestic and global markets is started. This section explains these issues as well as the branding mechanism in the Persian rug GVC.

4.2.1 Pre-weaving

Three stages of the pre-weaving process are fibre-making, loom preparation, and design.

4.2.1.1 Fibre-making

Two types of raw fibres are essential in rug making: fibres for warp and woof (on the back of a rug), and fibres for knotting (on the top of a rug). Fibres can be wool or silk (or both) and raw materials for fibres are made within the country and/or supplied by importer. Usually, the wool fibres are supplied from local agencies and the majority of silk fibres are imported from China.

Usually, warps are white (without colours), but in some areas they can be coloured for some reason (or because of designing bases). Fibres for woofs should be coloured in the different colour bases on the design. Fibres for

knotting (the top of the rugs) are very important and sensitive. Obviously, the quality of fibres affects the quality of the rug.

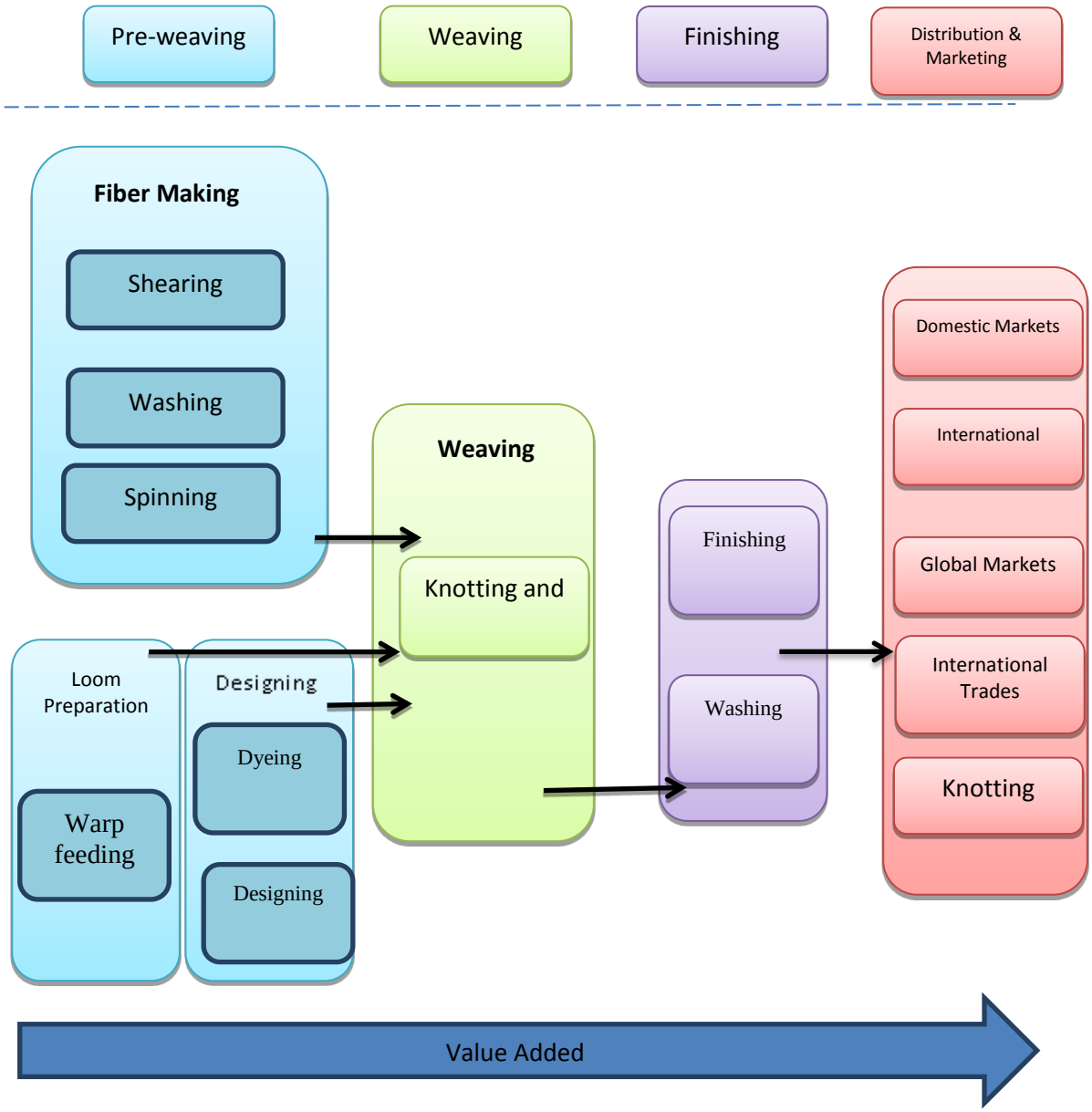


Figure 18- Value –added activities in the Persian rug GVC.

The four main stages to prepare the fibres are shearing, washing, spinning, and dyeing. Silk fibres are supplied from markets in threads and ready for white

warps or they just need dyeing and are ready for use for knotting, but wool fibres follow a different method. For wools, in areas under a traditional culture, weavers may be able to do all the stages of fibre-making. In rural areas, some stages are done by specialists or weavers buy ready fibres from markets. Fibre-making (all stages) is a professional occupation in recent years and fibre makers work with famous producers and make special fibres for specific projects.

Shearing is the first stage of fibre making (see Figure 19). This stage involves cutting off raw wool from sheep. The obtained product is sorted based on the quality and density of the wool. The best wools for rug production have sufficient strength, good elasticity, good surface adhesion, colour absorbing, and adequate length.

Figure 19- Wool shearing: the first stage of fibre-making (Mehr News Agency, 2013).

Washing is the second stage so that the obtained wool is clean before spinning. One traditional way is to drop the wool in the river for some days. This is the best solution because mineral water makes the wools stronger[9]. In some regions (some rural areas), the whole sheep is washed in the river instead of the sheared wool, and the wool is much more clearer and stronger (TP[10],3) (see Figure 20).

Figure 20- Wool washing in some regions (Mehr News Agency, 2013)

In urban areas and big cities, washing factories make very clean wools with a high standard of quality. One important and big chain factory is the Carpet Corporation (Sherkate Farsh Co.) that established some washing factories in different regions in Iran.

Wool spinning is the last stage to make raw fibres. In this stage, fibres are made via washed wool from the shearing stage. Tribal weavers make their own fibres using traditional tools (see Figure 21).

[9] A similar technique is used for timber products, specifically for some musical instruments.
[10] TP=Tabriz producer

Figure 21- Traditional tools for spinning.

The industrial method for spinning is making fibres in factories. There are many small factories in cities and also some big companies that produce yarns that are ready for use. Some weavers use both hand- and factory-spun fibres in rugs.. Factory fibres are smooth and suitable for the body of a rug, while hand fibres are not smooth but are suitable for the flower part of a design. The combination of these two fibres makes a unique type of rug.

Because of the shortage of wool supply in Iran, wools for rug production are imported from other countries. There are more than 200 types of sheep in the world that are in four groups: Merinos, English, breeding, and wool-rug. Figure 22 shows the map of wool-rug producers.

The final stage for preparing fibres is colouring the fibres from the spinning stage. Dyeing is the heart of rug production in Iran. Similar to the previous stages, this step could be done by weavers or expert actors as this stage is very critical for the quality of rugs. Two methods for dyeing are herbal and chemical (and/or a mix method of dyeing) in the Persian rug industry.

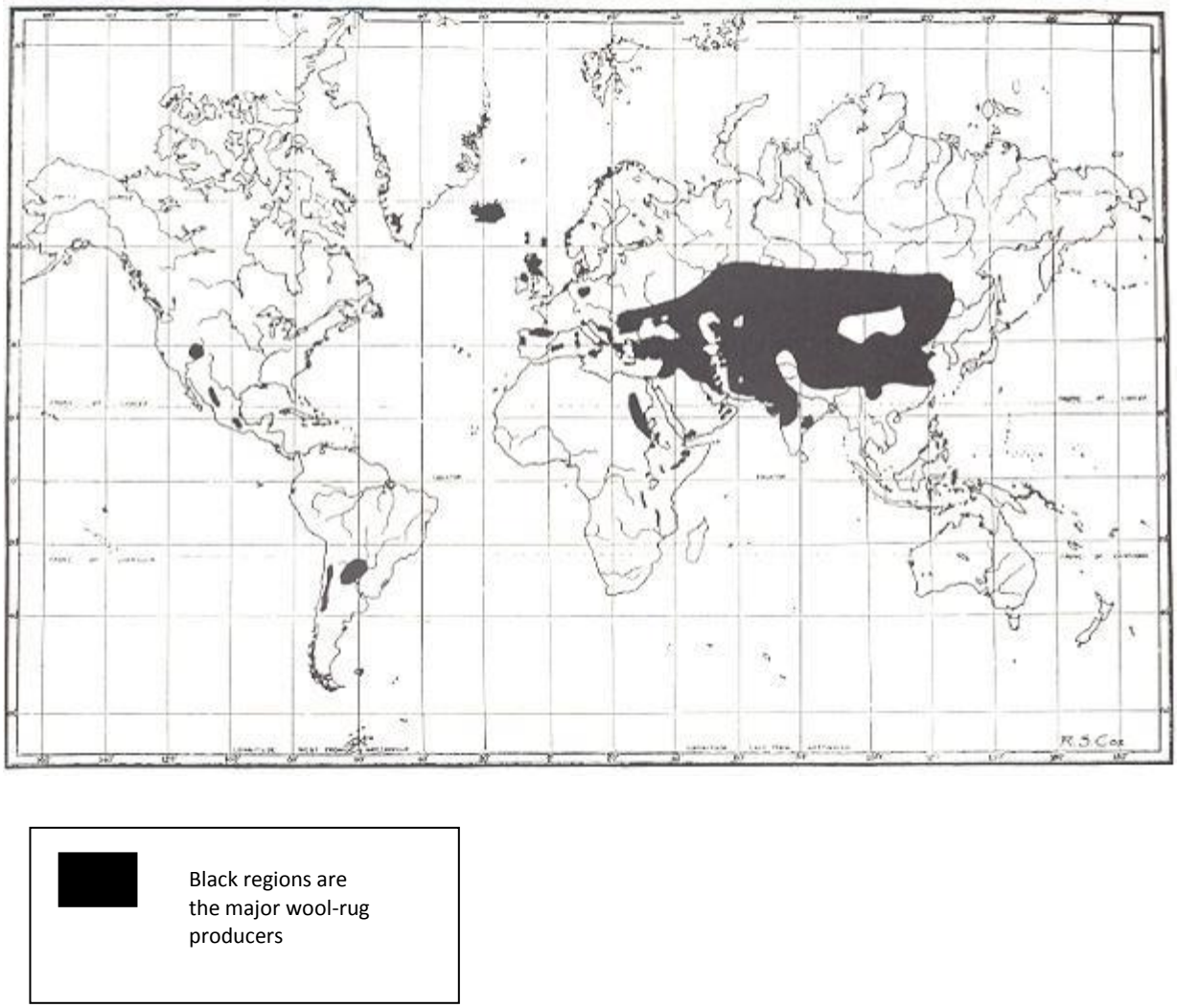


Figure 22- Wool-rug producers worldwide (Neo-pazyryk, 2013).

All fibres for *traditional rugs* in rural areas and some tribes are herbal coloured.. Herbal colours are more beautiful, durable, and add more value to a rug. The process of herbal colouring follows a traditional method. Raw fibres are dropped in a pot with warm water, mineral salts, and colouring materials, and heated and stirred until the fibres absorb the desired colour. Herbal colours do not have standard colour codes and totally depend on the dyers' ability and skills to make high quality, herbal coloured fibres. Also, in different regions colour codes vary (and are non-standard). For instance, a 'blue' colour in Tabriz

is different from the 'blue' colour in Isfahan. This differentiation is from the nature of the wool, colouring materials, method of dyeing, and the chromatic aspect of the culture of each region. The standard of colours is totally regional (or local).

Weavers can dye the fibres or buy them from professional dyers. These expert dyers know the variety of colours in the spectrum that are used in each territory, and usually, their activities are limited to their territories. Recently, in the traditional method of dyeing chemical materials are used frequently because this method is affordable, and it is easy to have the same colours (standard colours). The traditional method of dyeing maybe takes days to prepare similar coloured fibres (see Figure 23).

Figure 23- Traditional dyeing factory.

In the industrial method of dyeing, chemical materials are the only basis for dyeing. This method is faster than the traditional approach and has a wider

spectrum of colours, but the quality of colours is different from (and in some cases lower than) the traditional designs. However, because of the recent shortages in the traditional method of colouring, weavers or producers have to buy any type of fibres (chemical or herbal coloured). The phase of dyeing is completely related to the design stage and weavers usually make their own colours of choice. However, when the designs are from specific producers, weavers have to match the exact colours on the design.

4.2.1.2 Loom preparation

Loom is the main equipment for rug weaving. Correct loom preparation is essential for the quality of the rug, particularly for making the correct size of rugs with the correct design. Looms are made in timber or metal that have to be made by a specialist manufacturer (see Figure 24).

Figure 24- Looms in rug production.

The first phase of the loom preparation is warp feeding. This stage is very important and sensitive because a minor mistake could create a big problem for

a rug. Usually, warps are made by non-coloured (white) wool. In some cases warps are coloured fibres and can be made by silk. Warp is a twist of strings that is tightened in parallel shape on the both sides of a loom. The twisting time (or layers) is related to the amount of knots. For coarse rugs, warps are 12 layers, for delicate rugs, they are 9 layers, and for fine-spun rugs warps are made by silk.

The role of warp feeders is very important because their efforts to set high quality warps are an important determinant of the quality of rugs. Weavers can feed a loom but usually skilled feeders prepare the looms for weavers in order to achieve better quality. Feeders must be aware of the design and types of fibres to calculate the number of layers and also the length and width of the warps. Moreover, they are always ready to fix any future problems during the knotting stage.

The second stage of loom preparation is row knotting. Feeders weave a row for 2-4 centimetres. These basic preparations make the loom ready for weavers.

4.2.1.3 Designing

A good quality Persian rug must be based on a specific and professional design. Design is the main aspect of Persian rugs in that the uniqueness and lower degree of similarity in designs are the competitive advantages of Persian rugs in global markets. Except in some small areas where the design and knotting are combined, a pre-design from designers and/or producers is the key element in rug production. Designing a rug is a complex stage and requires a high degree of knowledge about all techniques and elements in rug production, including cultural and regional dimensions.

Three groups of actors are able to design a rug. First, producers, who are the main actors in the Persian rug industry, have sufficient knowledge for all stages of rug making, including colouring, weaving, and a variety of design dimensions. They know traditional and regional design patterns, have a creative mind, and are aware of global market demands. After they prepare a design, based on its complexity (details and difficulties for weaving), they first find suitable weavers and start the project of rug weaving. Second, expert designers design rugs but usually do not know or do not have sufficient experience to produce and weave a rug. They may have knowledge about rug designing or could be famous graphic artists (e.g. Rasam Argangi and Mir Mosavar). Third, weavers, in rural areas can design the rugs or make a rug based on traditional patterns from their traditions and heritages.

4.2.1.4 Weaving

After fibres are made and coloured, the loom is prepared, and the design is ready, weavers can start the knotting stage (as the main stage of rug production). Four steps for weaving are knotting, woofing, combing, and cutting. A knot is a short string (wool or silk) that is tightened around the warps. Two types of knots are symmetric (Turki) and asymmetric (Farsi) (see Figure 25).

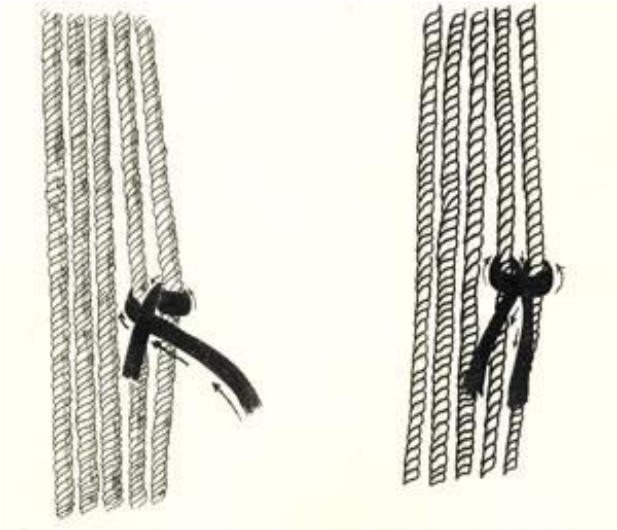


Figure 25- Farsi (left) and Turki (right) knots.

The number of knots shows the quality of the rug in which rugs with more knots are more expensive than thin rugs. The Farsi knot (left) is tightened string around two warps with one end released. The Turki knot (right) is similar with two sides tightened. The Turki knots are more stable and suitable for coarse wool fibres, and are popular in the West and tribal areas in Iran. Farsi knots are popular in the East and the central regions in Iran where soft woven rugs are the traditional products in these regions. In addition, the number of knots in each row is important, with more knots making a higher quality and more durable rug.

One important issue in knotting is the possibility of having fake knots. A fake knot is a tightened string on more than two warps (usually 4 or 6). Using this knot means the time of rug production is reduced but the quality of the rug and its durability are also diminished. This type of knot is the main difference between Persian rugs and production from competitors.

The next step in rug weaving is woofing. After weavers make a row of knots, one string must be moving horizontally above the row. This string could be cotton, wool, or silk in white or other colours. In this step rows are separated from each other and the strength of the rug will be increased. Woofs are normally one or two strings but more than 3-5 provide a fake woofing and low quality rugs.

The next step of weaving is combing. All knots and woofs are combed to the down side to make the density of a rug. This stage should be done after the woofing step to prevent damage to the rows.

The last step is cutting the excess length of each (or 3-5) row to give a uniform set of rows and provides more accuracy with the design; then, after finishing all rows, the rug is cut from the warps and the loom.

4.2.1.5 Finishing

Finishing is the final stage to make the product ready to send to the markets. After weaving, the excess length of strings of knots must be shortened to make a smooth surface on the rug. This stage is very sensitive and if the person who is finishing the rug is not skilled in this occupation, the rug could be seriously damaged. The height of the lint (knots exceeds strings) in different regions is between 2 to 20 millimetres. The next step in finishing is sewing the margins of the left and the right sides of a rug. Tight and perfect margins increase the durability and quality of the rugs. The final step in the finishing stage is washing and drying the rug to stabilise the colours.

4.3. Economic geography of brand and branding in the Persian rug GVC

One major concept for economic geographers is spatial scale to understand the environment of global activities. Two groups of scholars consider this phenomena, one group (idealist) believes that spatial scale is not real and do not exist in which is a 'mental contrivances' for having better understanding about processes and practices. On the other hand, the second group (materialist) believes that geographical scale exist as a substantive social phenomena. However, both of these camps have similar ideas to explore the scale as separate and distinguishable concepts under hierarchy of spatial divisions such as urban, regional, national, and global (Herod, 2010). Another category could be defined under transnational, national, and local scale (McGrath-Champ et al., 2010). Apart from such categories, the importance of the relationships between actors in different geographical scale is investigated by scholar. In this way, space is important as structuring social relations and actors in the geographical scale are resistant subjects (McGrath-Champ, et al., 2010). By this means, the originate of actors in the Persian rug industry, the cultural aspects of places, and relationships between actors within and in different places are important.

In the Persian rug industry, brands and branding are the competitive advantage and a characteristic to distinguish the range of the quality and price of a rug. Because of regional impacts on this industry, provinces, cities, and even villages have specific brands, of which many of them are known in domestic and global markets. These brands are representative of designs, patterns, colours, style of weaving, raw materials (silk or wool) and overall spirit in a single rug. These elements make a concept that shows the quality and

value for a single rug, which is significant for buyers. In addition, actors and their relationships, geographical impacts, heritages and traditions, and cultures from a region affect the branding process.

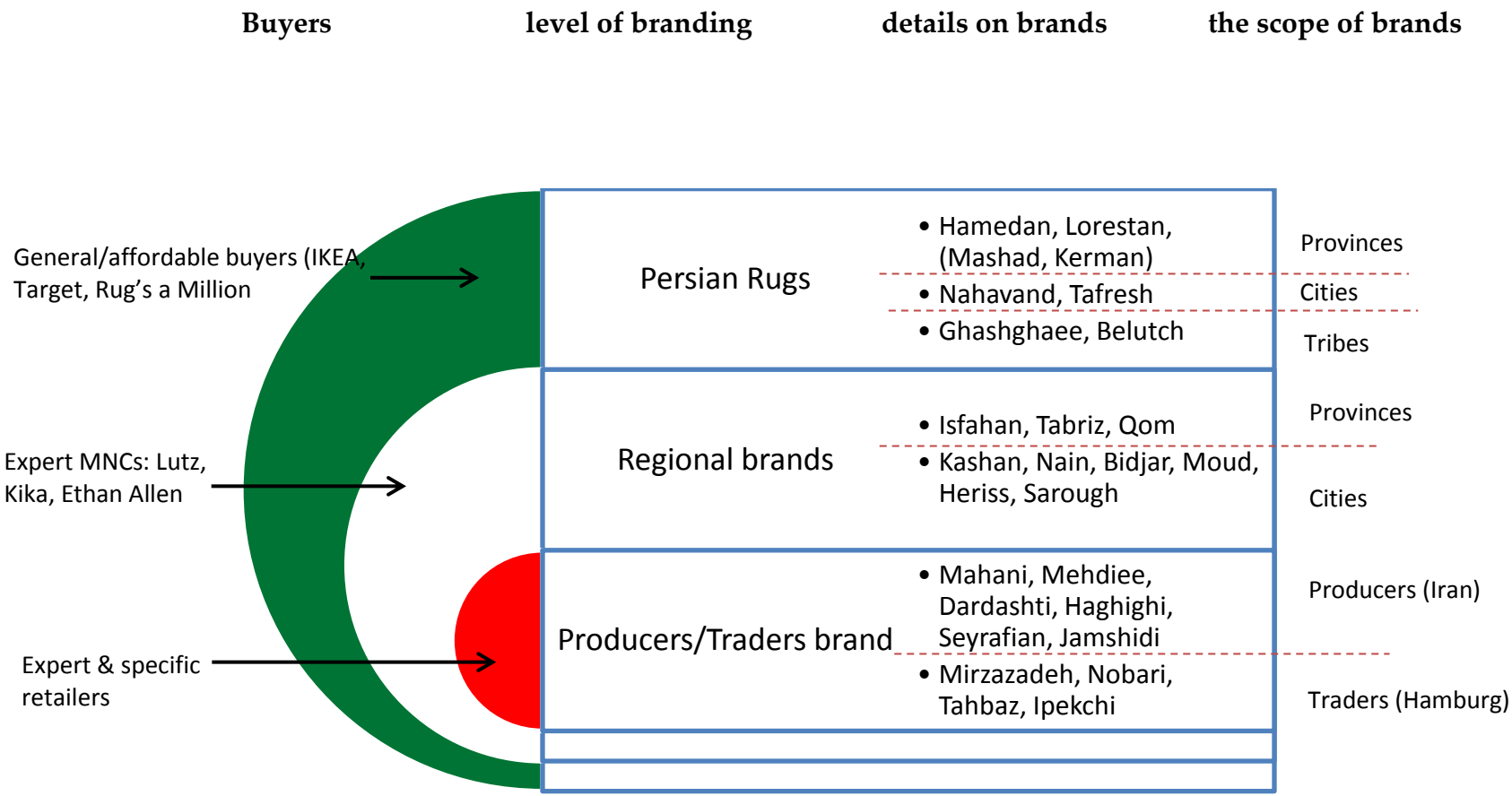


Figure 26- Brands and branding in the Persian rug industry.

Buyers in all markets distinguish three levels of brands for the Persian rugs in global markets (see Figure 26). The first level is the overall branding image that is related to the rug which is made in Iran: the Persian rug. The second level is the image of specific regions, and the third level of branding is related to the producers. In fact, professional buyers who have a high level of knowledge about a specific producer in a particular region in Iran look for a brand from the third level of branding while normal buyers may simply look for a 'Persian rug' (the first level of brand). Moreover, in the second and third branding levels (from overall Persian rug to specific producers' brands) the prices of rugs increase. This section explains these three levels of branding.

4.3.1 Three level of branding in the Persian rug GVC

The first level of brands is about the group of buyers who want to buy a 'Persian rug'. This generic and conceptual brand represents any rugs that carry the 'Persian rug' name, regardless of their place or origin. Hence, any rug with an overall design that is similar to the Persian rug could influence the buying behaviour, whether the rug is made in Iran or not. A huge number of competitors in global markets have made non-specific designs (similar to Persian rugs) by using their own brands. Even in machinery products, competitors imitate overall designs of the Persian rugs. For instance, Belgium machinery rugs with a Persian rug design sell in Harvey Norman chain of retail stores in Australia [11].

These buyers do not use in-depth research to purchase rugs but look for very affordable rugs. They could find their desired products from general retailers (e.g. Target) or affordable furniture retailers (e.g. IKEA). The rugs are medium to low quality, cheap, and usually a small size. These retailers supply rugs in three different origins: products with a province brand (for which these provinces are not the top selling regions in this industry);

[11] Some of their products use the regional brands (Second level of branding).

some small cities in different provinces (their products are usually a rural product); and finally, medium quality rugs from tribes (e.g. Ghashghaee).

The second level of branding is buyers who decide to buy a high quality rug and are certain about their purchase. With some consultation and research, they find that regional brand-name rugs are the main and authentic purchases in the Persian rug markets. These buyers sometimes refer to specific retailers (e.g. Lutz) that supply the rugs professionally. The buyers provide rugs from well-known regions and in high quality.

Actors in this industry focus on the regional brands as the core competencies for value creation and capture. Rugs from Tabriz, Isfahan, and Qom are sold with this level of branding. In addition, some small cities (or villages) provide famous rugs in global markets, such as Heriss or Sarough. The majority of Persian rugs in global markets are sold with this level of branding.

The third level of branding is about discerning customers who are looking for special and unique rugs. They have sufficient knowledge about rugs and pay a lot of money for: 1) a Persian rug; 2) a rug that is made in special regions (as desired by the design and colours); 3) a rug that is made by famous producers (the brand is woven at the bottom or top) (See Figure 27). Each region has a limited number of well-known producers who "sign" the rugs with their own brands. The suppliers of such rugs to global markets are luxury retailers, Iranian dealers/ small shops, and/or buy via online. For luxury big retailers, the broker or wholesalers of such rugs are also important. Among traders in Hamburg, limited traders' names are famous for wholesalers as a distinctive brand.

Translation:

Isfahan - Ali Dardashti

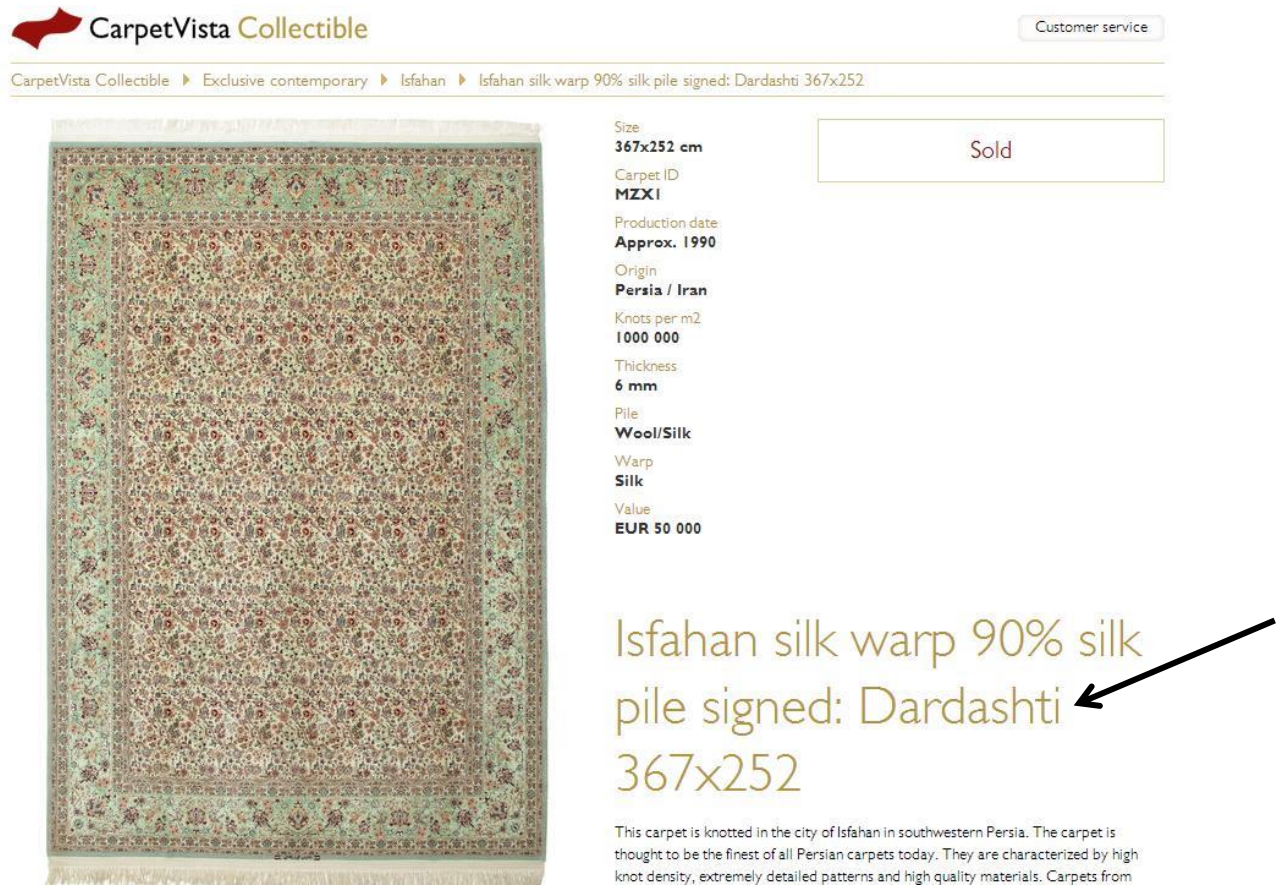


Figure 27- Producer's rug brand name (see arrows)*(Carpetvista, 2013).*

Because each producer could sign their own product, the third level of brands is very sensitive due to the fact that many of the consumers in this category are not sufficiently familiar with producers to distinguish the differences between well-known and ordinary

brands. This is the role of retailers to increase the knowledge of consumers about producers and their brands. In addition, some traders in Hamburg have their own specific brands, which increase the reliability of the quality if rugs are made for global buyers. A brand, such as Mirzazadeh is well-known among luxury retailers, whereas Akhavan Farshchi is famous among antique retailers, and Ipeck, Djavad Nobari, and Tahbaz are well- known by big retailers (general or special retailers). They are famous because they have sufficient knowledge about all levels of brands and branding processes in the Persian rug industry, are experienced, and have a long history of working in the industry.

As mentioned above, regional brands (second level of branding) are the main branding mechanism in the Persian rug GVC. However, it is possible to make a rug by the design of a specific region in another area. For instance, producers or weavers in Kerman might intend to make a Tabriz or Isfahan rug. In global markets, competitors from other countries use the brands from the Persian rugs to increase their value capture by imitating the second group of brands (regional brands). They use the design, colours, and famous regional brands in Iran (see Figure 28).

The products from these competitors are not exactly the same as the regional design and colours they imitate, which is a reason that their products are much cheaper than the original rugs. The results of using the Persian rug brands' characteristics by the competitors are the name of the regions, sometimes a famous name of producers (with some small changes), and a small similarity in design and colour use. Recent sanctions to Iran provide an opportunity for these competitors to upgrade them in global markets and capture greater value where, for instance, importation into the USA is forbidden even from third countries. The Iranian economy lost a large market because of the sanctions on financial services, while India, Pakistan, Nepal, china, and Turkey exploited this

opportunity. Some of these competitors make rugs using their brands and designs, but a large number of their products are imitations of Persian rugs.

Figure 28- Imitation of Persian regional brands by international competitors. The brand names highlighted in red.

The reasons that international competitors are weak to imitate a Persian rug are because of the nature of the industry. Some elements are related to the regional dimensions that impact on the quality, design, and colours of rugs. These elements are different from region to region and they are closely related to each other. These factors are integrated, as one combination within a rug becomes a source of value, power, and image for a single region (even a small village). If the level of this integration is strong, then they make one combination for a rug that is the power of the geographical brand in the industry. The elements of this integrity could be classified into three sets of elements.

The first set of elements is about the actors in this industry. Some or all of the actors in each region could be in a full chain, including weavers, producers, designers, raw material providers, dyers, wholesalers, retailers, and non-chain actors (universities, chamber of commerce, governmental institutions). All of these people and their relationships affect the image of a single brand. Actors with their knowledge and relations are the main competitive advantage in the branding process and global markets. Tacit knowledge about rug production that is inherited by these actors cannot be transferred to or imitated by competitors.

In addition, a part of the image of the "Persian handmade rug" is the effect of the regions (or sub-regions). For instance, an Isfahan rug has two sides of an image: a Persian rug that is a signal of the overall quality and an Isfahan rug that is referred to as a deeper aspect of the brand. It means that the place where weavers'/producers' live is important in the branding process. Furthermore, a single rug is woven by a single weaver or by a family (related weavers), which makes unmixed knots and keeps the uniformity in all parts of a rug.

The second set of elements is about the culture of each region. Artistic articles, traditions, heritages, religions, the history of art and rug production in each region, and the gender

of the weavers are included in this set. These elements are specific for each single region, and some aspects of these elements that are used in the design (or any stages of rug production) by the other regions are not a big success (or maybe cause downgrading). Obviously, international competitors do not benefit from such imitation. The geographical brands depict this set of cultural elements. The tacit knowledge of actors is from their heritage as well as accumulated during their professional occupation in a specific place.

The third set is about the geography of regions, including weather, terrain, and vegetation of the regions' land which affect the raw materials, style of production (including colours, designs, size, thickness), market relations, and the time of completion. For instance, a rug from a cold and mountainous area (e.g Heris) is completely different from a rug from warm and desert land (e.g Nain). This represents the impact of the regions on rug production.

The combination of the three sets of elements are not diminished by some simple factors under "benchmarking" or "reverse engineering" or any type of transferring-codifying method for imitating and competition. Due to the traditional mode of industry, the knowledge and techniques to make a rug are integrated with the actors. Competitors are aware of this fact and have been trying to recruit some masters (producers or high capable weavers) in their factories to transmit needed knowledge, but they are yet to be successful. Thus, they just copy the main and famous designs with their own style of production (see Figure 28). According to the important elements on brands and brandings that are explained above, a brand in the "Persian rug" industry encompasses the imagination of the particular regional factors, and specific quality. Moreover, the dominant method of rug production by competitors is the factory style of rug-making which involves making a lot of similar designs each time. This is in contrast to the Persian

rug for which it is almost impossible to find two similar rugs. Furthermore, different persons might weave a single rug, and as a result, rugs are in mixed knots.

Based on global exports and sales, Appendix 3 shows 24 major brands of Persian rugs from different regions in global markets. All of these brands are in the third level of branding which carry the name, 'Persian rug', the regional name, and the producers name. However, among these brands, some regions have more of a reputation in global markets. Nine brands are among the top sellers by reputation, competition, and attention for consumers as well as value creation, and other regional brands are in the other priority of branding for the industry.

Summary of the chapter

This chapter provides a review of the Persian rug GVC in terms of its four main aspects, including the main markets, regions, actors, and activities in the Persian rug GVC. In addition, different value-added stages of rug production are explained in order to have a good understanding about several stages in making a Persian rug. The next three chapters analyse the coordination mechanisms in the three main regions to address the research questions.

Chapter 5

Isfahan Region

Introduction

This and the next two chapters report the results from the interviews about in the three main regions in the Persian rug GVC, and in this chapter, which has three main sections, the findings from the first case study of Isfahan region are analysed. The first section provides a descriptive review of the Isfahan region and its rug industry. In the second and main section, four production modes in the Isfahan rug GVC are analysed. The empirically observed type of governance is explored for each production mode, as well as that predicted by Gereffi et al.'s (2005) 3Cs GVC framework (complexity of transaction, capability of weavers and codification of information exchange outlined in Chapter 2). In the third section, the role that embeddedness plays within each mode is explained. The

final section provides an overall conclusion about the main issue of coordination mechanisms in the Persian rug GVC in the Isfahan region

5-1 A review for the Isfahan region

This section provides a descriptive review of the key characteristics of Isfahan province. These characteristics are important to explain the role of regional elements that have influenced the Isfahan rug industry. The geography of the region, cultural aspects of actors, and economic issues in rug GVC in Isfahan are evaluated.

Isfahan is an historical, industrial and touristic province in the centre of Iran. The importance of Isfahan province is very important to the Iranian economy. The names of Iran and ***Isfahan*** are linked as one notion specifically in the areas of art, ancient architecture, and culture. In other words, Isfahan is the symbolic portrait of the history and arts of Iran, and has been producing rugs for global markets for over five hundred years.

The main cities in rug production in Isfahan province, which are the city-brands, are Isfahan city, Kashan, and Naeen. Isfahan city is the most important of the three brands of Isfahan province, with 60% of rugs that are produced for global markets in this province coming from Isfahan city (The union of handmade rug producers in Isfahan, 2014).

The present research found that rugs from Isfahan are sold to specific, specialist buyers in global markets such as Lutz, rather than to general retailers (e.g. IKEA). As a result, the strategy of producers in Isfahan has been concentrated on producing branded rugs for these specialist buyers and also supplying rugs of acceptable quality for other possible retailers. However, due to the high price of Isfahan rugs and the need to supply affordable products for general retailers, supplying Isfahan rugs to the general retailers has decreased in recent decades. For both markets, "medium to high quality rugs" (IP,11), different sizes, and modern colouring are essential in their production. In addition, coordination of the rug GVC in Kashan and Naeen is quite similar to the Isfahan rug GVC

both in technical (the way of making knots and rugs) and structural (designs and colours) elements. Thus, reviewing the rug industry in Isfahan city is adequate for the analysis of this province. The following parts of this section describe the geographical, cultural, and economic aspects of Isfahan rug GVC.

5-1-1 Geography of the region

Isfahan region is located in the middle of Iran with a size of 10,7045 km^2 (equivalent of 6.57% of Iran's land area). This region has ten neighbouring provinces, which is the highest number in Iran and provides a unique and strategic location for this province (see Figure 29). In addition, compared to some other important regions in the Persian rug industry, Isfahan is close to the capital of Iran, Tehran, (approximately 400 km).

Figure 29-The geographical location of Isfahan province.

This province has 24 cities, 50 districts, 107 small towns, and 127 villages**.** Isfahan is the third largest and most crowded city in Iran after Tehran and Mashad. The population of Isfahan province is about five million people of which 85% live in urban areas and 15% in village areas (Statistical center of Iran, 2014).

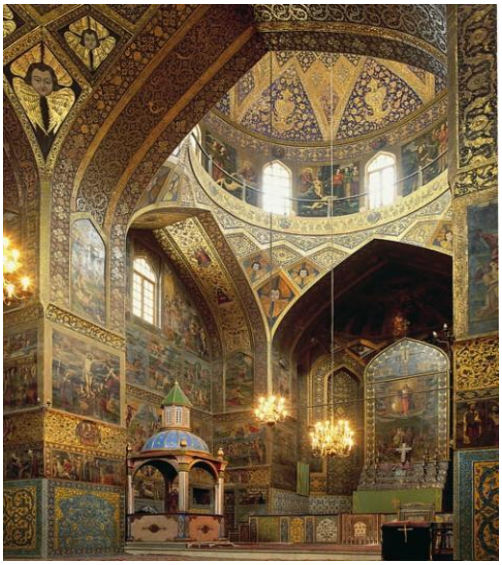
Isfahan city is located in the lush plain areas from the West, desert areas from the North and East, and mountain areas from the South. In addition, there is a semi-dry climate with diversification of terrain around the city. The average annual rainfall for the province is 160mm, and 120mm for Isfahan city (Statistical center of Iran, 2014).

Mountain, desert and plain areas are around Isfahan and affect climate, temperature, and vegetation in this region. This unique geography provides an opportunity to increase herbal colouring to make rugs of a higher quality and value. This climate provides unstable weather and allows the growth of heterogeneous vegetation. This diversity provides a variety of *pigment plants* that are suitable for natural dyeing. Therefore, the possibilities to use a variety of natural colours and the level of innovation in rug colouring are high.

The structure of Isfahan city is separated by the main river of "Zaiande Rood", which crosses the city in the north territory and the south areas. Because of some urban changes in the Safavid dynasty (1501-1736 A.D.), the northern areas of the city have been the location for palaces, markets, mosques, governmental departments, and important sites, while in the southern areas, ordinary and religious minorities (mostly Armenian) have lived and worked. All major rug centres, including factories and markets, are still in the northern areas of the city.

5-1-2 Cultural aspects of Isfahan

A large number of artistic and historical architecture within the city represent the importance of art and history in Isfahan city. Buildings, bridges, mosques, churches, bazaars, and also palaces are around and within the city (see Figure 30).



The Vank Cathedral

A downtown restaurant

The Bridge of 33 Arches

The "Shah Abbasi" Hotel

Figure 30- Some artistic architecture in Isfahan city.

Artistic culture, traditional architecture, and handicraft industries are the main elements of the Isfahan province culture (Administrative of Isfahan province, 2014). The historical and artistic environment provides a basis for increasing the output of artworks in Isfahan. The handicraft industries use symbols, patterns, colours, and spiritual elements from other arts (e.g. tiles in famous architectures), and other handicrafts. These elements are

linked together and affect each other under one notion of the Isfahan art industry. The uniformity in arts makes an agglomeration among them and is a reason for the development of art industries such as rug-making.

In addition, the culture in Isfahan has remained intact since the last century and is a significant aspect of the cultural impact of the Isfahan region on rug production that distinguishes Isfahan from other regions. In the Persian rug industry, specific and known designs of rugs from one region have been made in other regions, except for Isfahan rugs (IP, 13). For instance, Qom rugs are made in Tabriz, Kashan rugs are made in Mashhad, and Tabriz rugs are made in Zanjan (HT,1). These scattered regional designs can decrease the image of regional brands but this is not the case for Isfahan. Despite the high level of immigration to Isfahan from other provinces and cities, in this rug industry almost all main actors (weavers and producers) are originally from Isfahan city or maybe from some close cities or villages (IP,5,13).

To some extent, the rug industry in Isfahan has prevented actors (both weavers and producers) from other regions from making Isfahan rugs. Producers in Isfahan are reluctant to work with weavers from other regions who are not familiar with the designs and technique of Isfahan rugs. They believe that non-native weavers need many years of experience to be able to make original Isfahan rugs (IP, 5). As a result, they prefer to work with weavers who are from Isfahan than train non-native weavers (because the cost of production is increased). Also, producers from other regions do not tend to move and work in the Isfahan rug production because they are not accepted in the community of producers. If producers from outside Isfahan copy an Isfahan rug and make it in their own region, the differences between the copied and authentic product can be identified by specialist buyers. This homogeneity in actors protects any influence of weavers or producers from other regions affecting Isfahan rug, particularly on designs and colours.

Specialist domestic and global buyers can distinguish this originality and pay higher prices for such rugs. Traders and global buyers require a closer examination of rugs from other regions to identify if the products are original (and made in the correct way). But for Isfahan rugs, they distinguish the original rugs easily because products from other regions and even other countries (including Isfahan India rugs) are very different from Isfahan rugs. This aspect of an Isfahan rug is an advantage that is unique in the Persian rug industry. Producers in Isfahan know this important factor and try to maintain the quality of their products.

5-1-3 Economic aspects in Isfahan

Five of 31 provinces in Iran share the majority of economic power (Statistical center of Iran, 2014) (see Figure 32). Isfahan province, with more than 10,000 industrial factories and large industrial businesses, is economically the second most important region in Iran after Tehran (Administrative of Isfahan province, 2014).

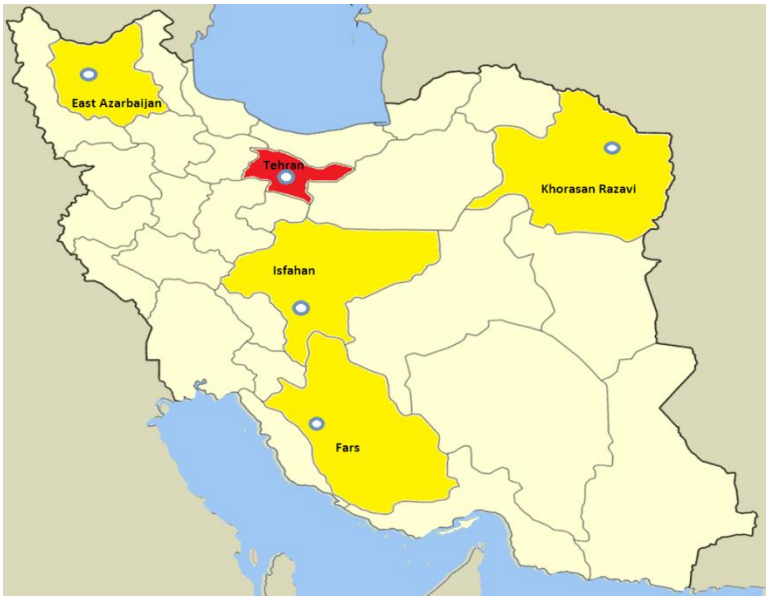


Figure 31- Five main powerful regions in the Iranian economy.

This province is the region that links many resources, facilities, and provides economic and industrial supports to the other regions and neighbouring provinces in the centre and the south of Iran. The heavy and light industries in Isfahan province's economy are of equal importance for the country. This province is the second largest province in national GDP contribution with 6.9% (in 2013) (Statistical center of Iran, 2014)., and is one of the main cities (and province) in Iran with heavy and light industries, A huge oil refinery, the biggest steel industry, a giant cement factory, and a variety of mining industries are examples of heavy industries in Isfahan.

Overall investments from the government and private institutions also have an impact on light industries. The handmade and machinery rug industries are the significant light industries in this province. The strategic role of Isfahan province is crucial for Iran and the government and has made Isfahan province a noteworthy region to allocate a high level of investment in the yearly budget. In addition, other features, including the arts, history, culture, and traditions in this province have improved the economic environment. For instance, in the tourist industry, Isfahan is one of the main destinations in Iran that provides a high level of tourism opportunity for this region.

Handicraft industries are one of the main segments of light industries in Isfahan where rug production is one of the largest and most profitable light industries in Isfahan (Iran National Carpet Centre, 2014; Statistical pocketbook of Isfahan, 2012). In 2011-2012, rug exports from Iran were around USD 550M (Iran National Carpet Centre, 2014) of which the share from Isfahan was around USD 100M (18%), which equated to 12% of the volume of rug exports (The union of handmade rug producers in Isfahan, 2014). However, in 2013 the total income from rug exports in Iran declined to around USD 315M but the share remained approximately the same (USD 60M (19%)) (Iran National Carpet Centre, 2014; The union of handmade rug producers in Isfahan, 2014).

In addition, the number of potential weavers in the province is almost 470,000 in 2014, that is, the potential weavers are registered for insurance coverage that is provided by INCC. They, at least, must have been working on a rug in the past three years and on a real project to be eligible for the coverage. It means that the number of weavers who make rugs in any year is lower than the number of potential weavers. Identifying the number of active weavers in the whole of the province is not easy because in some villages and small cities weavers are not well organized. However, in Isfahan city, the union that organises this industry estimated that around 40,000 weavers are active in this industry in 2014 and until the time of the present research, 70% of these weavers were registered in the union and had a weaver ID card (IP,13).

Moreover, there are an estimated 400 independent producers in Isfahan of which 286 are registered with the union in 2013 (IP,13). The majority of these producers have established their own factories. The number of weavers who are working for specific producers varies from a small workplace of 5 to 10 weavers to more than a thousand weavers in many factories for one producer (The union of handmade rug producers in Isfahan, 2014). However, the number of factories and their exact size for particular producers are not estimated by INCC or the union. The above actors are organized by the union of producers and weavers in Isfahan.

Tourism in Isfahan city is another factor in the economy of Isfahan province. Because of tourist attractions in this city, Isfahan city is the first destination for the majority of tourists who visit Iran. Direct rug retailing to tourists is 5% of the total sales to global buyers from this region (IP,3,4,6). The tourist-related advantage of Isfahan city provides a situation to capture great value by eliminating the other actors (brokers or other traders). Although the total value capture from interactions with tourists is not high, these relationships have increased the image of the Isfahan brand in the long-term and encourage actors in this industry to enhance their quality of rugs for global buyers. This

opportunity is not considerable for other regions. The term "rug tourism" emerged when tour leaders began bringing tourists to the rugs markets and sometimes to factories, and provided information, advice and guidance for tourists.

The other economic aspect of the Persian rug industry is its branding. Thirteen styles of rug production are in this province[12], and each style is the name of a city and is also a known brand. In other regions, including Qom and Tabriz, the major branded rugs for each city/style is limited to one (for Qom) or two (Tabriz and Heris), but in Isfahan at least three famous brands and ten less powerful brands are well-known in global markets.

To sum up, the light industries of Isfahan are based on the traditional and cultural capacity of the region. Rug production as a traditional industry has benefited from these aspects of Isfahan. The structure of the rug industry and its organization by the union mean that the rug GVC in Isfahan is in a strong position to make rugs for global markets.

This section reviewed the overall aspects of the Isfahan region, which imply that the Persian rug GVC in Isfahan is formed by strong support from the rug industry actors and non-chain actors outside the rug industry, as well as the cultural and traditional background. The next section provides a detailed analysis of the rug GVC coordination in Isfahan city.

5-2- Governance mechanisms in the Isfahan rug GVC

In this section, data from the interviews are analysed to examine the governance mechanism in the Isfahan rug GVC. The aim of the analysis is to evaluate the production

[12] The main styles are Isfahan, Naeen, Kashan; Ardestan, Joshaghan, Aran & Bidgol, Khomeini Shahr, Chadegan, Tiran, and Khansar,.

mode that is determined by lead actors (producers) in each region to exploit the opportunities in the domestic and global markets. Producers allocate the main resources, including labour, finance, raw materials, and time in a variety of ways based on the weavers' characteristics. In each region, weavers have different characteristics and requirements. For instance, the gender of weavers means that producers set up different production modes, such as factory or home-based production. The governance mechanisms employed are related to these production modes because producers adopt different ways to coordinate each production mode.

The main global buyers of Isfahan rugs are specialist buyers from branded rugs and furniture retailers in global markets, and Persian rug traders in Hamburg. According to the interviews, these buyers have different subsequent customers with different levels of demand in quality and price. Thus, producers in Isfahan have to supply a variety of quality of rugs at competitive prices.

> Isfahan rugs are distributed in several countries with different designs and specifications….we have to make different rugs to have more growth and financial competencies… (IP,11[13]).

As a result, producers, as the lead actors in this GVC, adopt different production modes to make a variety of quality of rugs and also an adequate quantity of products to supply global markets. Because all weavers work in urban areas, producers do not have difficulties in working with weavers based on their place of living. However, village rugs are also made in this province but their volume is not significant.

The evidence from this research shows that there are four different types of coordination of rug production in Isfahan. Producers might adopt all these types of production mode or only focus on one. However, branded and famous producers employ all of these

[13] IP= Isfahan producers

modes in their rug production system. The first and most important mechanism of coordination is the vertical integration in producers-weavers relationships, which is primarily in a factory production mode.

> In Isfahan, we have established [rug] factories to make our desirable rugs for specific aims…. Each buyer or market needs specific rugs that need our concentration to make rugs for these buyers. Then, we have to provide a daily interaction with weavers….in rug factories we can control all aspects of rugs as we know this is the only way that we can control rug production as we required (IP,5).

The second and third types of coordination are about working with 'home-based' production modes. Based on weavers' capability and skills, producers need to employ either a high or low level of supervision in working with home-based weavers.

> A number of good weavers are working in their home and we need to make rugs by working with these weavers (IP,13).

> Weavers who make rugs in their home need to be supervised to increase the quality of rugs…. Some of them need more time and energy to make high quality rugs (IP,11).

Finally, the fourth production mode is working with a group of weavers who can make rugs without the direction of any producers. These weavers work independently in the rug industry in Isfahan.

> We still do not have complete control over all the rug production…. Some weavers are famous in the rug industry and they are a type of producer but they make rugs in low volume (IP,3).

The four production modes discussed in this chapter are: factory system; high supervision home-based weaving; low supervision, home-based weaving ; independent weaving.

Table 6- Important criteria in different production modes in Isfahan rug industry (Iran National Carpet Centre, 2014).

	Factory system	High supervision, home-based	Low supervision, home-based	Independent
Percentage of weavers	50%	30%	10%	10%
Value creation share	55%	25%	15%	5%
Export rate	60%	25%	5%	10%

Table 6 shows the structure of the rug industry as well as the value and export rate for each level in Isfahan in which rug factories employ the half the number of weavers in Isfahan. The next major production mode in terms of the number of weavers is high supervision, home-based weaving, while for the remaining two production modes, the proportion of weavers is distributed in 10% differences. This level of contribution is relatively similar in terms of value creation and rate of exports. However, for these two factors, the table shows the importance of the rug factory production mode. This table also shows that compared to the other production modes, independently working weavers are not pervasive and have less contribution in value but a slightly higher export rate than the low supervision of, home-based weavers. The data is approximate because it was gathered from a number of reports from INCC.

The structure of this chapter is to analyse the above production modes. First, an overall review of the relationships between the actors is provided In each sub-section; then the observed governance types are analysed based on the evidence from the interviews. In a further step, the governance of Persian rug GVC in Isfahan is analysed by using Gereffi et al.'s (2005) approach, as elaborated in Chapter two.

5-2-1 Factory system production mode

In this section, data from the interviews about coordination in rug factories in Isfahan is analysed. The first step is to explain the relationships between the actors and the level of control at the different stages of rug production by each actor. Then, the governance types observed in each mode are analysed followed by a sub-section about the governance types predicted by the three Cs from the GVC governance approach. In Isfahan, rug factories help to increase the quality of products:

> This is the only way that I can make an acceptable rug for my customers who rely on my production history (IP,1).

> Expanding rug production to different places decreases our ability to keep the quality at a high level… the aggregation of rug production in one place…under the factory entity we can maintain the quality of our rugs (IP,13).

Hence, rug production is the main way for producers in Isfahan to make high quality rugs. According to the interviews, almost 50% of weavers in Isfahan city worked in factories and more than half of the products and value creation were from factories (IP, 11,13). A factory is a worksite with a number of looms which, depending on the size of the rugs and the time required for completion, one or two weavers (see Figure 32) or several weavers (see Figure 33) work on a loom.

Figure 32- The large factory system of production in Iran.

Figure 33- Several weavers on a project in factories.

The sizes of the factories differ according to the quantity of rug production by each producer. The major producers have a number of different workplaces of different sizes but some producers only have one small rug factory with a small number of weavers. The size of rug factories in terms of the number of weavers is between 10-100 and some

producers work with more than 1000 weavers across a number of rug factories (The union of handmade rug producers in Isfahan, 2014 & IP,13).

The main characteristic of rugs that are made in rug factories in Isfahan is the dissimilarity in design and each loom in a factory has a different design and size. Producers in Isfahan determine one specific design for each single project in rug factories, which is different from other projects. As a result, all products from rug factories are unique, which is an advantage for producers in Isfahan.

> No one can copy our new products because we make rugs based on a unique design for a single rug (IP,3).

The factory system produces high value rugs which can be a very high quality and the cost of production for these rugs is also high, including using specific designs (supplied by highly skilled designers or by producers with a high creative ability), use of unique raw materials that are expensive for rug-making (fine wool, herbal colours, and handmade fibres) and the employment of competent weavers who ask for higher wages. These rugs are much more expensive than products with repetitive designs, normal wool, and chemical colouring of fibres.

Factory products are branded rugs that are crucial for producers in Isfahan. Thus, producers need to control all details throughout all of the stages of rug production to maintain the quality of the rugs.

In rug factories, producers do any task in rug production to increase the quality of rugs which encompasses innovative designs with a very high quality rugs

> Very odd design sometimes is perfect for the modern markets and we have tried to keep the prestige of the Persian rug as well as uniqueness and innovation in our design (IP,4).

> The overall structure of our design follows the Persian rug style, but we use different elements in rugs to enhance the novelty of products…particularly for international markets (IP,11).

Fibres and colouring are also important aspects of high quality rugs. Some producers have their own fibre-making and dyeing factories because they require control over all other stages of rug production. These producers choose inputs carefully to make high quality rugs and their control over various stages of rug production is very important and sensitive for them. Producers supply all materials to the factories, and weavers are recruited to make rugs within a determined time.

> In our factories we put every needed item into the rug production to ensure the quality of rugs…. Control of the input is very important for this way of rug making (IP,13).

Figure 34 shows the stages of rug production in rug factories in Isfahan and the level of control by each actor.

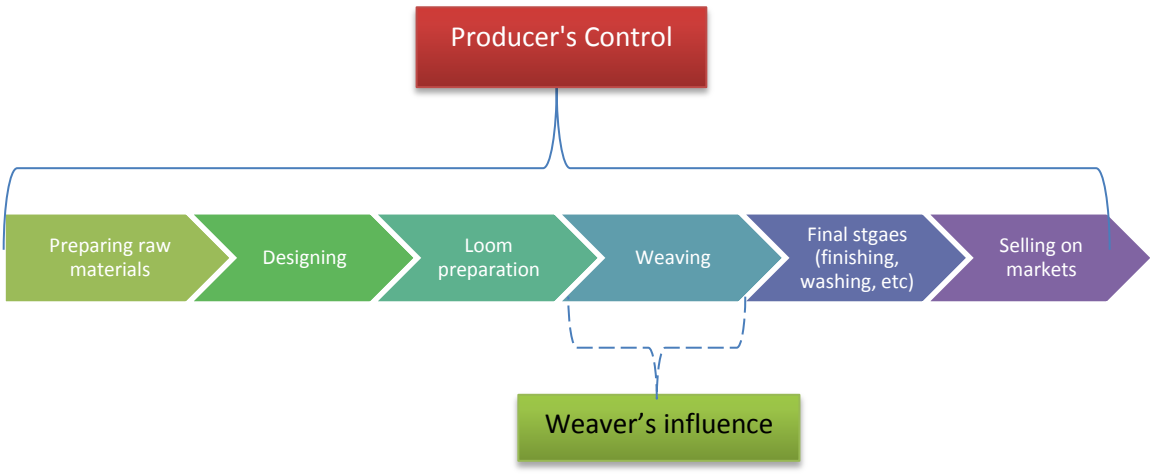


Figure 34- Value-added chain in the factory system of production

In this figure, although weavers have a degree of influence on rug-making producers fix any possible deviations from the design in their daily inspections because of their complete control over all stages and specifically of the weaving stage. The next section analyses these issues under the concept of governance mechanisms, including both mechanisms observed and those predicted by the three Cs and the GVC governance approach by Gereffi et al. (2005).

5-2-1-1 Governance mechanisms in rug factories in Isfahan

This section provides the observed governance mechanisms based on the evidence from the interviews. Then, an analysis about the prediction of governance types based on the three Cs is presented. In the Isfahan region, the observed and predicted governance types match. Therefore, the role of embeddedness to explain the emergence of the production modes and shaping of the governance types is analysed to explain the role of regional factors in coordination mechanisms in the Isfahan rug GVC.

5-2-1-1-1 Observed governance in rug factories in Isfahan

As explained earlier, producers in Isfahan need to exert complete control over rug production in order to make specific, high quality and branded rugs. Establishing a rug factory is the only way to have such control. In rug factories in Isfahan, producers have a high degree of power to influence all aspects of rug production:

> Making high quality rugs needs more care…. If we let weavers make their own rugs then we will not have high quality rugs….. weavers listen to our direction but we have to show the master-trainee relationship in order to make high quality rugs (IP,11).

In this vein, producers employ weavers in a specific place, and instead of paying the price of a finished rug, they pay weavers a wage.

> I believe that weavers who have access to a wage can make better quality rugs and faster because they have a lot of different jobs [duties] in their home (IP,2).

Weavers who work in rug factories cannot make rugs for other buyers. Producers adopt a high level of explicit coordination and internalise weavers in rug factories. Both parties prefer to have lengthy relationships because working with specific producers provides more mutual experiences and weavers can make rugs with few errors.

> Almost all weavers who are working in my factories have at least five years experience with me….. I usually work with weavers for some rug projects and then accept them in rug factories (IP,10).

> Weavers in factories should have worked with us on some projects before any employment relations to check their ability to make innovative rugs (IP,5).

Thus, producers have a high degree of power to determine different details about making rugs as well as accepting or working inside or outside rug factories with weavers. With a high level of managerial control of internal weavers, a **hierarchical** governance type is consistent with the type of relationships between weavers and producers in rug factories in Isfahan.

5-2-1-1-2 Predicted governance types in rug factories in Isfahan

This sub-section uses the GVC governance approach to predict the governance types based on the level of the three determinant variables (the complexity of transactions, the codification of knowledge, and the capability of weavers as suppliers). It was found that the result from the prediction is consistent with the observed governance type.

Complexity of transaction: To make high quality rugs in rug factories in Isfahan requires the exchange of information between producers and weavers. The process of making rugs in factories with new details is much more complex than traditional and repetitive rugs, particularly in terms of designs and colours. Producers have to transfer the specific details about new designs to weavers to ensure the quality of the final product. Weavers have low design skills and, thus, require significant direction to prevent them from impacting negatively on the final product. Because producers provide all raw materials, including dyed fibres, the influence of weavers on colours is not significant. Hence, the main aspect is about design and the details on the rugs, and producer-weaver transactions are complex.

Capability of weavers: Weavers in factories in Isfahan are females who are able to work outside their home but their skills are not *sufficient* to work independently; they require close supervision to be able to make high quality rugs. Weavers have some influence on rug production because the industry is labour-intensive and the role of the workforce in such handicraft production is central. The influence is the degree of differences and changes in following the patterns of the design and also about the colours. The influence of weavers is not intentional and they do not control the decisions about the details of rugs in factories. This is because of the traditional way of making instructions, in which some details could be missing. In some cases, if the level of mistakes is high, producers employ specialist darners to fix errors while the rug-making is in progress (see Figure 35).

Figure 35- Darning of a rug with missing knots (Carpet-uicc, 2014)

Because of the high level of control by producers in factories, the possibility of errors is limited. This high level of control means that producers have high supervision costs, and to decrease this cost they employ relatively low skilled weavers at lower wage rates. They have a lower level of capability compared to weavers in the other production modes in this region. Producers in Isfahan need these weavers because of the shortage of weavers as well as the low level of wages in working with them.

Codification: Rug factories are the only production mode in Isfahan in which producers have complete control over all stages of rug production. Producers need to exchange complete details of projects to weavers for high quality and unique products within their own factories. They provide instructions for each rug by codifying the details for design, colours, and size of a rug.

A variety of different methods of codification are used in terms of making written instructions on graph paper, including instructions for the whole or parts of the design, and rows of rugs with a different level of direction in each method. This issue is important for codification in all regions in the Persian rug industry. In the majority of

projects, designs are 'symmetrical' (see Figure 36, left) and instructions are provided for half of the rug then weavers have to complete the remainder based on the woven first half. In some specific designs, rugs are non-symmetric (see Figure 36, right) and instructions must be provided for the full rug. In each production mode, one specific technique of codification is predominant.

Figure 36- A symmetrical (left) and non-symmetrical design (right) (Artteacher, 2014).

Although this section is focused on the factory production mode, it also explains how codification occurs in all production modes in order to provide a basis for differentiating the factory production mode. A detailed discussion of the nature of codification of

information exchange in rug production reveals why the development of the factory system was necessary.

The main issue in the codification of information is the size of graph paper. Large paper is used for instructions for the overall design, and for fewer details and for smaller areas of a rug, small instructions are provided in more detail on smaller pieces of paper. The size of graph paper follows a traditional Persian measurement system that is pervasive in rug production. The usual size of rugs in this system is determined by the 'zar' scale, which is equal to around 112cm. For instance, a small rug generally has a size of 'zar and a half', which is around 112cm × 56cm. For a high quality rug, more than 5,000 knots are required for a high level of elegance in each square decimetre (dcm^2) of rug area (IP,13).

The main way to identify the quality of a rug is to count the number of knots in a specific area. In this method, each 7 cm length is known as a 'Gereh' and the number of knots in each Gereh' shows the quality of rug. For instance, a 50 Gereh rug, is a rug with 50 knots in each 7 cm length. So, the scale is Gereh and producers provide instructions of different forms of Gereh size in a variety of production modes (IP,13).

Three main sizes of graph paper are frequently used in rug production. For high skilled weavers, producers do not need to provide as much detail because weavers have sufficient experience and skill to make specific designs. Thus, producers provide large sized graph paper that provides a design for weavers. This instruction has fewer details about specific elements. In relationships with such weavers, the rest of the knowledge that is not significant is exchanged verbally.

The size of such instructions for preparing graph paper is more than three Gereh for an overall design. The second size of graph paper provided in factories details rugs with new designs, and producers need to exchange the information about the new design as much as possible by written methods. However, because preparing graph paper for new

designs has limitations in transferring further knowledge, producers prefer to make written instructions in a medium size (around 3 Gereh) and exchange specific information about new designs to weavers verbally. The third size is for repetitive designs that producers use to provide instructions for highly supervised, home-based weavers. Because the information from the graph paper is sufficient for such projects, a small size of graph paper with complete details is sufficient for providing instructions. One Gereh size of graph paper is usually provided by producers. As a result, based on the production mode, producers provide instructions from one Gereh size to one overall instruction of a whole design (IP,13).

Producers provide such written instructions to weavers about how to make such high quality rugs (or how to make rugs with this level of density and complexity). All instruction details are about techniques to make correct knots based on the design and correct colours. The instructions also encompass different elements in a rug that must be exchanged with weavers as the main aspects of a design. Thus, providing instructions that are consistent with the quality of rugs is the best way in this traditional method of codification.

The current (and traditional) codification system does not provide extra room for further knowledge transfer. In other words, the current method within factories is to draw the baseline of different parts of a design on graph paper, add colours by inks that are very close to the colour scheme in real fibres, and provide directions about the number of knots in each row, and in some cases add techniques of knotting and further details (see Figure 37). These graph papers are provided to weavers step by step during the rug production.

Figure 37- A codified part of design (etfe.ir, 2014).

In factories, because producers need to exchange further information about the unique projects to weavers and this technique does not have the capacity to transfer further information for these products, producers have employed face-to-face interactions. In other words, factories enable them to have such verbal interactions. As a result, they have provided instructions in a basic way and try to exchange further knowledge via verbal interactions. Thus, for instance, they have provided graph paper for instructions in factories for rugs in the size of 'zar and a half' (112cm × 56cm) approximately[14] three Gereh (IP,13) (equal to approximately a 21 cm length). Also, for factories, producers prepare instructions in full *row* size. Thus, based on the amount of high quality rugs' knots (5,000 per each dcm^2) the graph paper for factories and for a 'zar and half' rug is approximately 21cm × 56cm and encompasses the instructions for more than 60,000 knots. However, the exact size and amount of information in each instruction differ among producers.

Some knowledge that cannot be transferred via the codification method is, nonetheless, essential for factories' products. In the face-to-face interactions in factories, producers

[14] Less or more. Related to the designer's aim.

exchange knowledge about the level of elegant knots (the size of different knots in base, borders, flowers, etc.), how different elements in the design of specific rugs should be combined, when and how different colours in one element must be changed, and other technical information about high quality rug production which is unique to each project (IP,13). This information needs to be exchanged person-to-person and monitored regularly to ensure correct progress in projects.

For instance, Figure 38 shows how producers provide their own colour code instructions for weavers (colours code card) and exchange knowledge about weaving correct colours in correct knots in one small part of a design. These face-to-face interactions are very important in using correct colours because a variety of similar colours are used in a design and producers need to explain the different colours in different parts of the design to weavers.

In sum, codification for exchanging knowledge in factories is not sufficient for completion of a final rug; producers need to have verbal interaction with weavers. The factory system of production provides this opportunity for producers to provide both instructions and face-to-face interaction for their projects for high quality and unique products. In other words, knowledge exchange is not easily codified (more details need to be provided through verbal interactions) and shows that the ability to codify is insufficient for the independent production of rugs. This level of codification and the requirement of direct supervision are affected by the choice of appropriate weavers in factories.

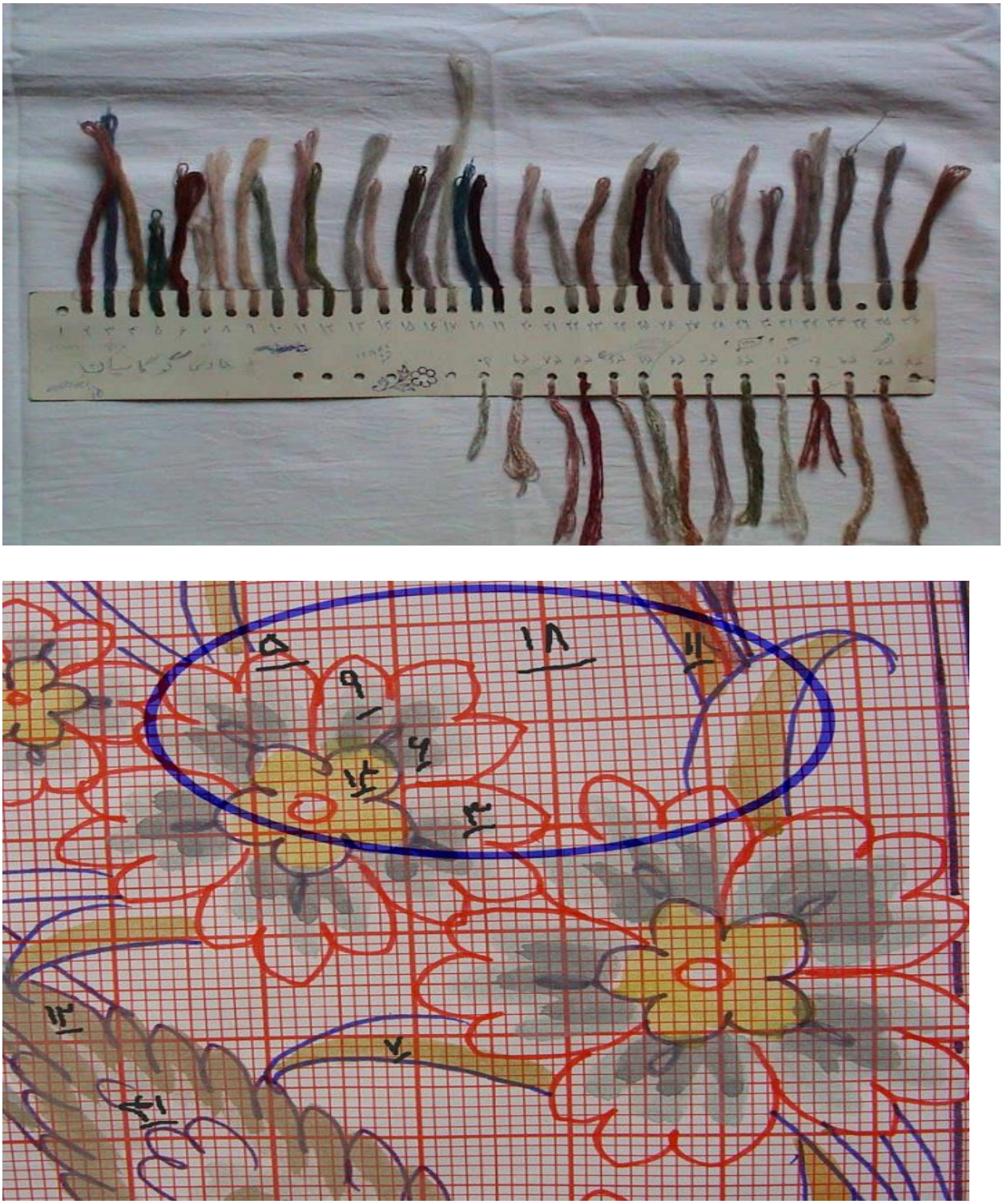


Figure 38- Colour code cards (top image) and clarification for weavers about using colours in different parts of a design (bottom image) (carpetour.net, 2014).

Conclusions about the governance types

The factory system of production is a vertical integration method of coordination in rug production that provides a reliable method for producers to enable them to make high quality products for global markets. This coordination type is pervasive in Isfahan and has been recently increased by branded producers (IP,5, 13, 11). All weavers are employed and receive wages in factories and they are responsible to weave the rug until the end of each project.

Producers need to work with specific weavers to supply unique rugs with a high level of complexity in the design. This has led to a need for hierarchical governance in Isfahan, and factories have emerged as the most dominant form.

According to Gereffi et al. (2005), lead firms (producers) are "forced to develop and manufacture products in-house". In a hierarchical governance, producers need to "exchange tacit knowledge" with weavers and exert managerial control "flowing from managers to subordinates". Producers also need to "effectively manage complex webs of inputs and outputs and to control resources, especially intellectual property" (Gereffi, et al., 2005). As explained above, these aspects of hierarchical governance are consistent with the relationships within rug factories in Isfahan where producers as lead actors have a large level of power in their relationships with weavers.

With this type of coordination, producers are able to maintain the quality of their rugs for the global economy. In addition, because of close supervision, this governance type allows producers to make innovative and new designs in factories in which value creation and capture from global markets is enhanced and their own brand position in global markets is developed further. Both observed and predicted governance types are consistent. The final section of this chapter explains the role of regional elements in the

above observed governance type as well as the shaping of the factory production mode under the notion of embeddedness.

5-2-2 High supervision, home-based production mode

In this section, rug production with home-based weavers in Isfahan who need more supervision to make high quality rugs compared to weavers in all other production modes will be evaluated.

Almost 25% of weavers in Isfahan work in their own home by an agreement with producers (IP,11,13) and they are supervised by producers. For producers, the second preferred production mode is to work with low-skilled, home-based weavers. These weavers are either prevented (due to the factories being at capacity) or choose not (due to cultural or economic issues) to work in factories. Because these weavers are low skilled (compared to the other weavers in Isfahan), a high level of supervision of their work is necessary.

Producers exert direct supervision by providing written instructions and regular inspections during rug production to ensure the quality and timeliness of completion. However, the control of the place of production and even access to the workplaces is limited because of socio-cultural issues that are explained in the section on embeddedness (section 5-3).

Usually, weavers have at least one loom in their home that is made by a specialist loom maker. A separate room or a part of the living area inside the weavers' home is the place of rug-making which allows weavers to work on rugs between their own household duties and also with help from family members (see Figure 39).

Figure 39- A loom in a weaver's home.

In some cases, weavers install more than one loom in their home and work on different projects with their immediate family and relatives. But the number of these weavers is not significant in Isfahan (IP,5). Producers provide the design for highly supervised, home-based weavers and ask them to make rugs identical to the design based on detailed instructions. Because less direct control over the progress of rug production is possible, as well as less frequent verbal interactions, producers provide instructions in different forms and sizes for transferring additional knowledge for making a given design. This issue is explained further in the codification section. Producers try to pay fair wages, and weavers know that working with the same producers over time provides more benefits, including greater social and economic support from producers.

Because weavers have a greater influence on rug-making in this production mode (as they are subject to less control compared to weavers operating in the factory production mode), producers are cautious in their production about the own innovative and competitive designs. Figure 40 shows the degree of influence at different stages of rug production in the high supervision, home-based production mode. Producers have complete power to control all stages of rug production but weavers have influence on the stages of rug weaving.

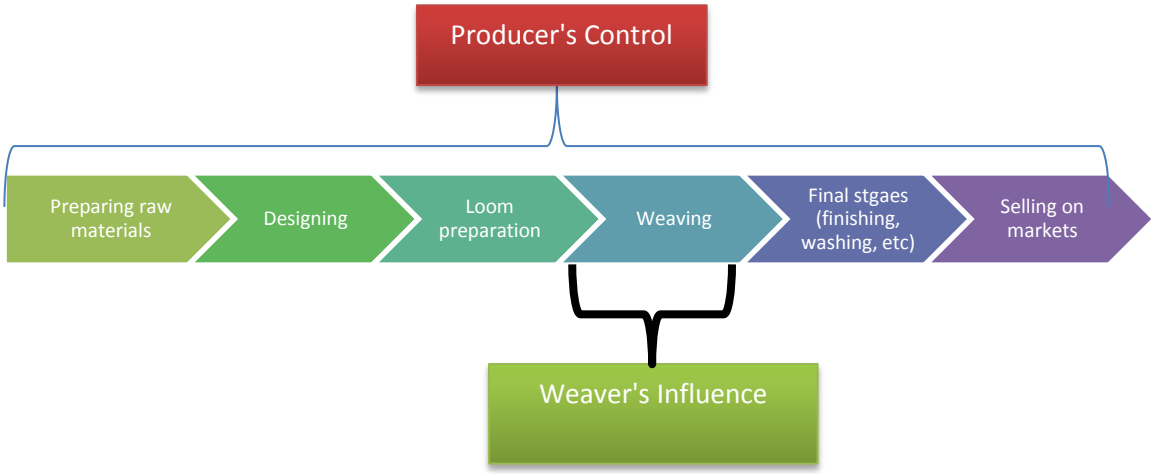


Figure 40- The influence of actors in the mode of high supervision, home-based weaving.

The woven parts of a rug are the main criteria to identify whether the rug can be a branded product. Producers wait until the final rows of the edge border of rugs (where their trade mark will be woven as their brand) to check that the quality of woven parts is comparable to other branded rugs. Then, the final instructions will include the brand mark. With branded rugs, weavers acquire greater income because of their careful weaving to make a high quality rug; thus, weavers increase their efforts to make fine knots and weave correct rugs based on the instructions. Rugs without branding are sold on the market at lower prices than branded rugs.

5-2-2-1 Governance mechanisms in the high supervision, home-based production mode in Isfahan

In this section, the analysis of the coordination mechanism in high supervision, home-based weaving is provided. First, the observed governance type is analysed based on data from the interviews followed by a detailed analysis of the prediction of the governance type based on data about the three Cs. The results of the analysis show that both

governance types are matched and that the GVC governance approach works as expected.

5-2-2-1-1 Observed governance in the highly supervision, home-based production mode in Isfahan

The capacity of rug factories is limited and producers have to work with other weavers who work from home. In working with home-based suppliers, producers do not have constant, daily supervision of the looms.

> We have to work with all weavers in Isfahan because the number of good weavers has decreased in recent years (TP,1).

> In working with a large group of weavers, producers and buyers are restricted in having control during rug production and we have to work with different weavers over time to motivate them in working in the right way (TP,8).

As such, a degree of supervision is required in working with home-based weavers. In Isfahan, two different levels of supervision are adopted by producers. In working with low-skilled weavers, producers undertake a high degree of supervision so as to make desirable rugs. In other words, some home-based weavers do not have sufficient capability to work in rug production in Isfahan with the lower level of supervision as other weavers. Producers have to work with these weavers because in recent years the number of weavers in Isfahan has decreased:

> We still need more weavers as rug weaving is not an ideal job for many young weavers in recent years…. They prefer to have secretary and clerk jobs instead of rug weaving (TP,13).

> I have to work with low experienced home-based weavers…and finding them is very hard…eventually it is the correct solution to work with low experience weavers and put a high level of energy and time into working with them…. In the future they will be good weavers (TP,9).

As a result, producers adopt a high level of supervision in which explicit coordination is needed. This means that producers need to determine all details and aspects in each rug for a variety of weavers who are working in their home. As such, the high cost of the coordination mechanism is sensitive for producers. So as to not lose their investment in teaching weavers to work in specific ways, producers do not let them work for other producers. With the shortage of weavers in Isfahan, the best strategy is to work with home-based weavers over time.

Usually branded and famous producers can work with this group of home-based weavers to make high quality rugs. With a good reputation in the market and having a high level of knowledge, producers can motivate weavers to make better rugs:

> Currently we have to look for weavers who are free to work with us; in recent years, they asked us to give them some orders…. In working with the remaining weavers [home-based] they follow our orders because they respect us as the masters in the rug industry in Isfahan (TP,13).

In the rug industry in Isfahan, the reasons weavers work with specific producers are important. Weavers with a high degree of power (such as independent weavers) are free to work with different producers, as they are known as experienced suppliers with a good reputation to make high quality products. Weavers with a low level of capability and little power have difficulty in working with different producers. In addition, producers provide supports by identifying weavers' requirements over time, such as financial, social, and work issues in their life. As a result, weavers believe that working

with specific producers can be helpful for them. Thus, by adopting locked-in relationships with high, explicit coordination, these weavers are governed by a **captive** linkage.

5-2-2-1-2 Predicted governance types in the high supervision, home-based production mode in Isfahan

In this section, the governance type is predicted from the analysis of the three Cs.

Complexity of transaction: Producers need to exchange all knowledge, techniques and details with weavers that are important in rug production in this production mode. Weavers are allowed to buy some requirements, including raw materials and fibres from markets. However, producers need to ensure that the materials are relevant to the design (e.g. the correct colours of fibres) and also have sufficient quality. As such, they have to exchange more complex information to weavers, and as much as possible by preparing instructions. For instance, weavers buy fibres from markets but producers need to provide them a colour card and teach them how to distinguish the correct colours.

Such issues increase the complexity of transactions because of human error; even higher skilled weavers may buy fibres in slightly different colours. In addition, weavers that pay for fibres need to include this cost as a production expense in the final price of the rug. Therefore, the information will be more complex with financial transactions. These issues highlight the high complexity of transactions in this production mode.

Capability of weavers: As explained earlier, producers work with weavers who are not able to work in factories. These weavers might be prevented from working in factories (e.g. because of cultural issues, such as the limitation of not working outside the home) or are not accepted by producers to work in factories (because factories are at capacity) and/or weavers have insufficient capability. This capability is not sufficient for them to

work independently or with low supervision, but it is not so low that it is neglected by producers for working on their projects, who tend to work with these weavers but exert a high level of control and need to have detailed instructions to make acceptable rugs.

However, their skills are not sufficient to provide them a source of power, and they are not able to rely on their skills to change producers. Producers know that their products have a medium quality with low supervision. By providing instructions and the possibility of further inspection (if they are not hindered by cultural issues, such as the limitation for producers to frequently access the looms) then the output from this production mode can be suitable for global markets and can create great value. After some projects (usually more than 4-5 rugs) and more conformity with producers, the capability of these weavers can be improved so that they can work with lower levels of supervision. Although weavers can work with other producers, this switching prevents weavers from being upgraded in this industry because each producer has specific standards, techniques and skill requirements. By working with a particular producer over time, weavers can acquire sufficient skills to work with less supervision and less detailed instructions.

> Weavers are sort of our child…they are growing in our atmosphere have learnt different techniques…if they are agile, then they will be a good producer… (TP,13).

If weavers switch to a new producer, it is possible that they will have to work under a high level of supervision again, particularly for the initial projects, because the new relationship requires different skills. In addition, the cost of switching to a new producer is very high for weavers while they learn new techniques. Thus, they prefer to work with a particular producer over time. This issue creates a locked-in situation for weavers.

Codification: In this production mode, producers need to exchange all details on written instructions as much as possible because they have a low level of control over the rug-weaving process. The designs that producers use in this production mode are not innovative. Unlike the innovative designs made in the rug factories, producers try to design rugs for this production mode based on elements known to weavers. According to the interviews, classical designs are the most popular for this production mode. Figure 41 shows the main parts of a classical design.

The elements in the classical design have some common components; for instance, the borders have small and large sub-borders, the medallion part has a main medallion design with a lot of flowers and symbols in layered medallion shapes, and finally, the base part has a variety of elements including different symbols and flowers which vary among producers. This information must be exchanged with weavers via instructions. A design with more components is more complex and needs more details in the instructions or in some cases it requires verbal interactions. However, in this production mode the verbal interactions are hindered because weavers have cultural limitations (such as religious issues).

Because the levels of innovative and new elements in the projects from this mode are limited, producers are able to use the traditional system of making instructions to transfer the majority of details with a minimum requirement of verbal interaction. Weavers are familiar with the elements of classical designs that are not new, and they only need specific details of each element (which are customized by producers).

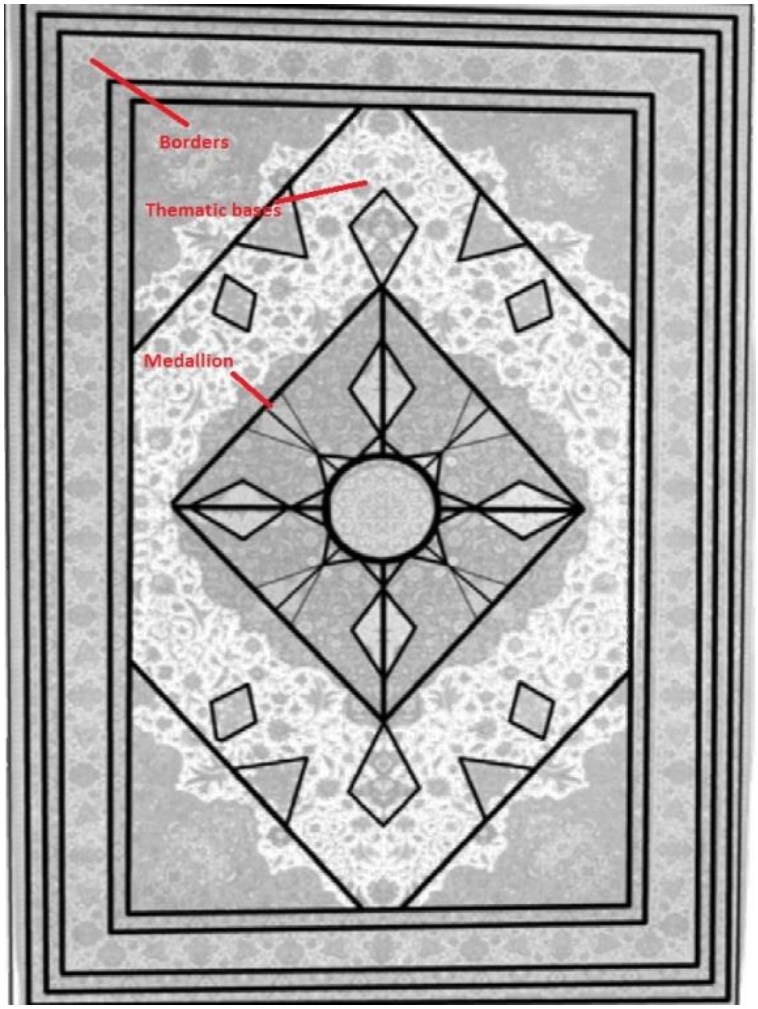


Figure 41- Main parts of a classical rug design (adapted from (mirzacarpet.ir, 2012)

Producers provide instructions on small graph paper and usually make instructions for different parts of a design. Weavers need to follow these instructions carefully to make a rug with acceptable quality. The first part of the instructions is how to make borders which provides the complete rows of borders (see Figure 42). Usually, the size of graph paper is one Gereh (around 7 cm), but depending on the design, it could be in different sizes (smaller or bigger than a Gereh). There are some important reasons that producers give these instructions to home-based weavers and do not provide similar instructions for factories. Because the majority of weavers in Isfahan are women, a number of regular inspections to verbally exchange knowledge are not an acceptable practice in Iranian

culture. As a result, producers try to decrease the number of inspections by increasing the details in the written instructions.

Figure 42- Making graph paper for borders (small and large border)(Mehr News Agency, 2013)

The second step is preparing instructions for the parts of the rug that have to be made after the borders. In a classical design (medallion rug), big flowers and then small flowers are in the next step (see Figure 43).

Figure 43- Different parts of a design for which instructions are provided (etfe.ir, 2014).

These instructions are provided until the end of the design (or half of the design in symmetrical designs). As a result, the codification of transactions is high in this

production mode. Despite this, errors in production show that the codification is not sufficient even for regular designs. However, producers need to work with low skilled, home-based weavers in order to increase the volume of production beyond what is possible from the factory production mode alone. In addition, producers like to have traditional rugs with some sign of being handmade that provide value for global markets. Persian rug production is a traditional industry, and similar to other handicraft productions, some slight imbalance in features, such as shapes, flowers, symbols, and colours can be acceptable and valuable.

The uneven features in the design, production and colouring of rugs makes them different from machinery products where interviewees believed that buyers look for such rugs to show that they are obviously handmade (HT 9, IP,9). All handmade rugs have an acceptable number of errors. However, among more than 30 major errors in rug production (see Appendix 4) (in which some of them are from producers' mistakes or by the other actors in the pre- or post-weaving stages) only a deliberate imbalance in design by producers/designers or the imbalanced knotting by expert weavers (which does not provide substantial errors) are acceptable in some cases. The types and number of these errors are very sensitive and can decrease the quality and value of a rug. Thus, producers wait until the final days of rug production before deciding whether or not to add their brand mark on the rugs. If the imbalance errors are very clear, then the quality of the products is considered low (see Figure 44). If the errors are not clear and make a 'new pattern' in rug designs then it could increase the value of a rug (see Figure 45). These errors and the possible improvement in value can be identified by highly experienced rug experts.

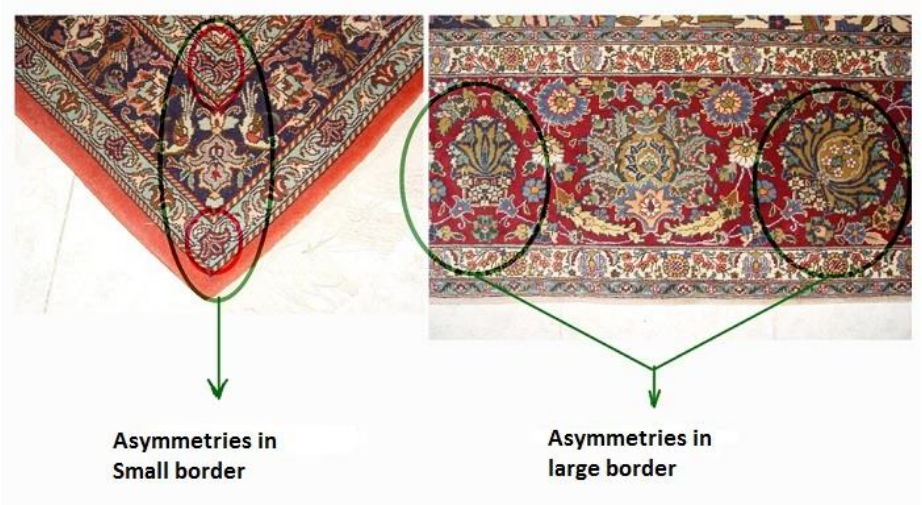


Figure 44- Non-accepted asymmetries. Adapted from (carpetour.net, 2014).

Figure 45- Accepted errors in border. Adapted from (carpetour.net, 2014).

Conclusion about the governance types: Analysis of the three Cs shows that in this production mode, complex information must be exchanged with low-skilled weavers via highly codified instructions. Thus, a captive linkage is predominant in this production

mode. While low-skilled weavers in this mode do not have low capability, in comparison with the other weavers they have a lower capability. They have to work in this mode because of the limited capacity in factories or some non-technical barriers (such as cultural issues).

Working with a particular producer over time can lead to a decrease in the level of codification required because weavers understand and develop skills in the specific techniques of rug weaving for a specific producer and weavers become more compatible in working with that specific producer. Working with such weavers can decrease the cost of production (less training requirements and less possible errors over time). Thus, producers have increased the possibility of developing this locked-in situation for weavers to guarantee that they will stay in their own parties over time. Despite developing higher skills, weavers have less compatibility with other producers' requirements, which reduces weavers' potential to switch.

Both observed and predicted governance types are a captive linkage. The role of embeddedness in shaping this production mode and the specific captive governance type are explored in the next section.

5-2-3 Low supervision home-based production mode

In this section rug production by home-based weavers with low supervision in the Isfahan rug GVC are analysed. Although the number of factories in Isfahan has increased in recent decades, producers still need to work with weavers outside factories to supply sufficient volume of rugs to global markets. Producers need to supply high quality and unique rugs that the output of factories is not sufficient for responding to the demands from global markets. As such, they work with weavers with an adequate skills level to make high quality rugs.

The number of these weavers is much lower than highly supervised, home-based weavers because after increasing their knowledge and capability, highly supervised, home-based weavers shift to work independently or in some cases they become producers. However, their products are very important for producers because their rugs are a high quality and also because of the low supervision costs. Similar to the highly supervised, home-based weavers, producers prepare instructions for home-based weavers with a low level of supervision but with fewer details and a smaller size because the weavers have more skill and need less direction in written instructions. In other words, preparing written instructions for this group of weavers has a lower cost than face-to-face interactions.

Weavers in this production mode have more influence on rug production. They are free to arrange loom preparations, select and buy fibres from the market (based on design requirements), and influence the design during rug production based on their experience. The speed of these weavers is also more than the other home-based weavers (almost half the time). However, this degree of influence does not lead to unacceptable errors because of the weavers' high capability. Weavers know how to make high quality rugs but they have low skills to make their own innovative designs. Thus, when making unique rugs they require some direction from producers. Figure 46 shows the degree of influence on the stages of rug production in the low supervision, home-based production mode.

As this figure shows, the weavers' influence is not equal to the producers' control. Additionally, weavers cannot decide to sell the rugs directly to the markets. Usually, producers have planned to make branded rugs from this production mode. The next section provides a detailed analysis of the governance mechanism in this production mode.

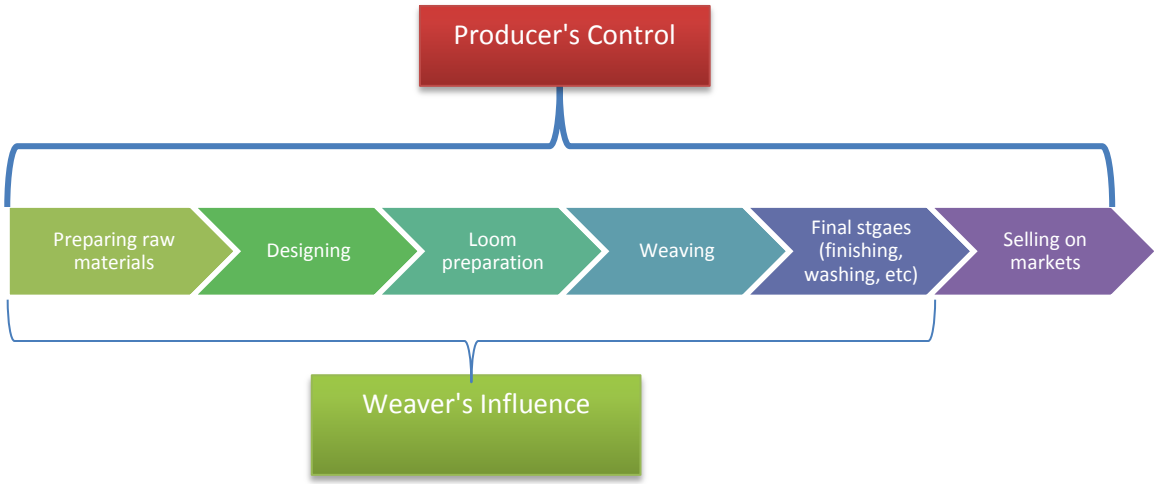


Figure 46- ***The influences of the main actors in value-added stages of rug production in the low-supervision, home-based production mode.***

5-2-3-1-Governance mechanisms in the low supervision, home-based production mode in Isfahan

In this section, the analysis of the coordination mechanism in low supervision, home-based weaving is presented. Similar to the previous sections, the observed and predicted governance types are analysed followed by an analysis of the embeddedness concept in relationships within this production mode.

5-2-3-1-1 Observed governance in the low supervision, home-based production mode in Isfahan

This category of home-based weavers who need supervision by producers are experienced weavers who have more professional workspace in their home and can buy the correct facilities and raw material to make specific rugs.

> Some weavers look to this occupation differently ….and love it…. For these weavers the quality of facilities is important…they would not use the old facilities and tools…in some cases their place of working is professional (IP,4).

Producers provide the design and make complete written instructions for the weavers.

> Our main designs are not allocated to these weavers… [but] we have separated this group of weavers from the others….they know how to make rugs based on our aims (IP,3).

Weavers are not locked-in to work with only one producer; rather, by working with a small team from their own families (or neighbours in some cases) they have a number of looms in their home and supply rugs for different producers.

> Some of these weavers are sort of brokers... They have good relationships with some producers and work with a couple of our colleagues in the same time (IP,4).

Such a position in the rug industry, with a high quality and professional work environment, provides a good source of power for these weavers. They usually switch between producers (for their main projects) because they have sufficient power to work with several producers and have fewer barriers within the producer network. Rather, they have some network ties that help them to maintain low switching costs. The level of supervision and explicit coordination in working with these weavers is low and these weavers have sufficient knowledge about several elements of the Isfahan design. Thus, they can interpret the written instructions with a low level of error.

> These weavers can make rugs with the general patterns that are prepared… they have good technique to add the suitable elements in the correct place… (TP,1).

Hence, working with this group of home-based weavers is preferred by producers because of the low costs associated with the limited face-to-face interactions. The level of codification is sufficient to make high quality rugs.

> They make rugs in a short time…their mistakes are minimal (TP,4).

> They provide all requirements and just add them in the final price…. Our simple pattern is also suitable for them to make good rugs (TP,1).

The specific rug that is made by order belongs to the producer, and the weaver cannot sell them on the open market without the producer's permission. Weavers are able to supply rugs to a number of producers but they cannot sell the rugs to the other buyers that are made based on a producer's design. Producers know that these weavers have sufficient skills to work with minimal interaction during rug weaving, and so they control the rug production with a low level of explicit coordination. Such linkage is consistent with a **modular** linkage between weavers and producers.

5-2-3-1-2 Predicted governance types in the independent weaving production mode in Isfahan

In this section, the three Cs are analysed to predict the governance type based on the GVC governance approach.

Complexity of transaction: The products from this production mode are unique and of high quality. Preparing one general instruction by producers and having a good quality rug in the final stage of rug production shows that weavers have sufficient capability and producers and weavers can exchange the necessary information about a project with a minimum number of interactions. The instructions also encompass a lot of details that weavers, by relying on their skills, can include within the design with some related elements at a high quality level. As a result, the complexity of such transactions is very high.

Capability of weavers: Preparing the whole design in one instruction and permitting weavers to make rugs with minimal supervision highlights that weavers have sufficient skills to make high quality and unique rugs. However, producers are cautious about

making very specific and highly innovative rugs in this mode. In this production mode the switching cost of weavers are low as they can change to another producer after each project. Therefore, the key factors in each rug can be transferred to any possible competitor and any innovation step will be unsafe. As such, producers are cautious when exchanging knowledge about their specific designs.

> One main reason for the low level of making specific rugs in working with these weavers is that they are not our weavers…however, some techniques in dyeing, linking design etc. can be moved to our competitors (TP,11).

These weavers have sufficient skills to make traditional designs but they cannot design a new and unique rug. They can make rugs via their own experience and traditions but because of a lack of knowledge in designing the unique rugs, their independent projects on innovative rugs have some substantial errors. Thus, they are confined to work with producers but with low supervision. To be an independent weaver or even to be a producer, these weavers need to improve their designing skills in training courses from the union and/or from universities. However, the level of their current capability is high enough to make rugs in the low supervision production mode.

Codification: The complexity of transaction about designs in this production mode is similar to the factory system. Producers need to make unique rugs, to some extent as mentioned above, to increase value creation from this production mode.

Thus, new rugs with new details in designs are made by weavers in their own home with a minimum of producers' supervision. Producers provide instructions on graph paper but because weavers know how to follow the instructions and have sufficient skills (including knowing how to make elegant knots, avoid errors, and fit the new elements of an innovative rug), the size of graph paper is larger than other production modes and

usually provides the general design with fewer details and in one whole design (see Figure 47).

This is because weavers do not need extra details and know-how to make specific designs. Thus, further codification is not necessary as the level of codification in this production mode is sufficient and high. For instance, the instruction in the left picture in Figure 47 is not codified the same as for the factory system or high supervision, home-based weaving but it is still in a highly codified form. The right picture in the Figure 47 shows a design that is simpler than in the left picture but the codification is also very high.

Figure 47- Instructions in general for high-skilled, home-based weavers.

Conclusion of governance types: Weavers in this mode are highly capable, and highly complex information about the design is transferred to weavers with high codification. This suggests that by codified knowledge, producers are able to provide a standard package to weavers and expect the final product by a specific time. This means that the

governance type is *modular*, which is consistent with the observed modular governance mechanism.

5-2-4 The independent weaving production mode

The fourth production mode in the rug industry in Isfahan is working with highly skilled weavers. These weavers work independently and have control in all value-added stages of rug production, including the pre-weaving, design, weaving, and finishing stages. In other words, these weavers coordinate all stages of rug production and producers only buy rugs from these weavers. The products from this production mode are unique rugs with innovative and new designs that are made based on weavers' traditions and culture (see Figure 48).

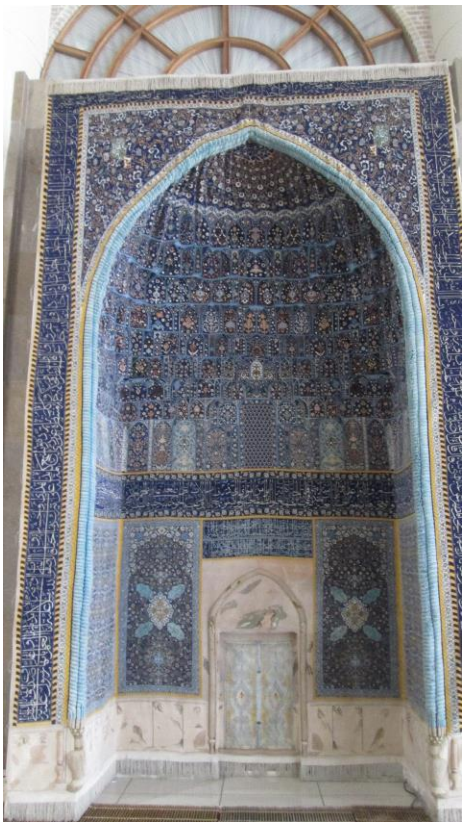


Figure 48- A complete 3D rug made by an independent weaver based on the front entrance of a mosque in Isfahan.

The products from independent weavers have significant potential to sell to global markets and capture substantial value. Producers buy these rugs directly from weavers, or sometimes from brokers, and sell them to global markets[15]. There is no other relationship between producers and weavers during rug production, such as technical linkages or supports from producers. Figure 49 shows the control of actors in value-added stages in rug production by independent weavers.

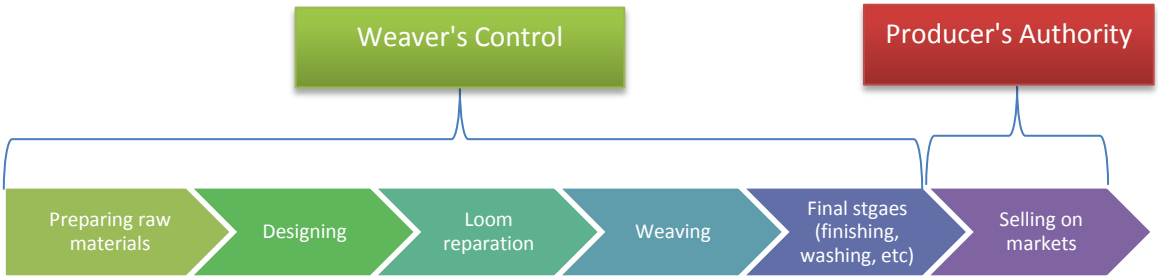


Figure 49- The influence of each actor in the process of rug-making when working with independent weavers.

These weavers tend to sell their rugs to the high-priced global and domestic markets; however, working in such rug markets needs trust, reputation, and strong links between buyers and suppliers that independent weavers do not have in these markets. As a result, they need to make relationships with the powerful actors, including producers, wholesalers, and brokers. Among these actors, producers pay a better price for their rugs and independent weavers tend to have more interactions with producers who have linkage to the high priced markets.

[15] These rugs are not branded but selling these super high quality products to global markets by famous producers guarantees the high level of value capture.

5-2-4-1 Governance mechanisms in independent weaving in Isfahan

In this section the observed and predicted governance types are analysed based on data from the interviews about the relationships between producers and independent weavers.

5-2-4-1-1 Observed governance in the independent weaving production mode in Isfahan

Working with independent weavers helps producers increase the quantity of high quality rugs for global markets. Independent weavers make innovative rugs by mixing a variety of traditional designs with cultural elements that make unique rugs from Isfahan.

> The way that independent weavers make rugs is quite professional and unique for each weaver….Thus, we have different, unique rugs which are a good source of income in this industry… (TP,13).

These weavers would not work in low price markets where brokers and wholesalers break the price. Direct relationships with producers and the possibility of links to the global market are the essential elements preferred by these weavers when working with producers. However, producers' pressure on weavers to make a specific design or use particular colours can cause disintegration in their relationship. Independent weavers have their own area of control in rug production because they have a high degree of power from their network relationships in this industry.

> Independent weavers are different from the other weavers…to some extent they are not weavers…rather, they work very professionally with a high level of independence in rug production (TP,4).

> Working with these weavers has some positive and some negative aspects…they make good rugs but dealing with them is difficult…because they have other alternatives in this industry to make money… (TP,9).

As such, producers have a low level of interaction with these weavers during rug production. The main point of their interaction is to bargain about the price of the product when:

> we determine a price based on some quality elements and some small differences (such as colours)…then they bargain about a higher price because of their experiences in working with the other buyers (TP,3).

> in buying time we have direct contact with these weavers or their relatives to determine the price….usually we reach a fair price for both sides… (TP,11).

The low, explicit coordination by producers is applied only when bargaining because they have a little a bit more power than weavers during this phase (due to their strong network relations, reputation, linking to the global markets and ability to pay money promptly and fairly). Hence, the only governance type in this production mode is a **market** linkage in relationships between independent weavers and producers.

5-2-4-1-2 Predicted governance types in the independent weaving production mode in Isfahan

In this section, the analysis of the three Cs is provided to predict the governance mechanism when working with independent weavers.

Complexity of transaction: The only transaction between actors in this production mode is to bargain about the price. Technical processes and physical elements during rug-making are excluded for their transaction. Actors have a verbal conversation about the price of the products based on the quality of the rugs. As a result, transactions in this

production mode are only based on pricing, and a low level of complexity of the transaction is predicted.

Capability of weavers: Independent weavers are highly skilled and professional actors, have sufficient capability to make unique designs and prepare requirements, and manage all value-added stages of the input-output structure. However, as mentioned above, they require more market experience to be famous and accepted in markets as producers. They gradually increase their own projects, employ weavers, and establish factories over time (IP,11). Thus, the capability of weavers in this production mode is higher than the other production modes, and weavers are able to work without the supervision of producers.

Codification: As mentioned above, usually producers and independent weavers do not have particular relationships before rug production. Negotiation about the price of the rug has little information that needs to be transferred. Both parties know that one element made in a rug that has a small error can decrease the price, and that good and fine knots in all parts of a rug can increase the price of the product. As a result, this level of codification is sufficient for such transactions and could be labelled as a high level of codification in this production mode. Based on the above level of the three Cs, a **market** linkage is predicted from these variables.

Conclusion of governance types

In this production mode weavers are highly capable, the complexity of transactions is low, and parties can negotiate the price of the product with a sufficient level of codification of factors that are related to its price, and the market governance type is predicted. Also, a market linkage is observed in the relationships between the actors because weavers and producers only focus on the price of the rugs made. Thus, both governance types are matched and the theory works in this production mode.

5-3 The role of embeddedness in the coordination mechanisms in the Isfahan rug GVC:

Embeddedness provides a further explanation about the role of regional elements in coordination mechanisms in the Isfahan rug GVC. Embeddedness analyses the major impacts on coordination in Isfahan: the way that a governance mode occurs in practice, and the reasons that a specific production mode is dominant.

5-3-1- The role of embeddedness in shaping different governance modes in the Isfahan rug GVC:

In **rug factories**, because the majority of weavers are women, socio-cultural norms in the rug industry in Isfahan have caused weavers to have a dependent role when producers coordinate the rug production (except in working with independent weavers).

> This is good that in Isfahan weavers are women…their needed wages are in the level that we can provide an adequate compensation….. women weavers listen to our directions and barely decide to have their own technique and ideas (TP,2).

> I can dictate all details in rug production to my weavers but not for the group that are working by own their resources [referring to Independent weavers] (TP,8).

As a result, the power of producers has been increased in relationships with female weavers. This high level of embeddedness increases the level of explicit coordination, particularly when weavers are low skilled.

> Usually, weavers have lower technique and ability to make high quality rugs than us [producers]… in rug factories our decision is to determine all details on rugs (TP,9).

Thus, because of the power asymmetry in rug factories, equal roles in relationships with producers are not provided for weavers. This means that the market, modular, and relational linkages have not have emerged in the factory production modes.

> They have to be managed to make acceptable rugs and we pay them a good level of wages to make rugs… we expect that they are good listeners (TP,2).

In rug factories, working outside home in a place that is similar to a formal organisation is accepted in the culture of this group of weavers.

> [rug] factories are accepted as a place of women workers…and also a place similar to companies or governmental organisation environments… (TP,8).

Thus, producers can employ weavers and internalise them in a specific system of production. Such interactions reinforce the **hierarchical** linkage in rug factories.

Because of the agglomeration in this industry between producers, the switching cost for **highly supervised, home-based weavers**, in this production mode is high. It implies that if weavers have failed in working with a producer, they are likely to have significant problems in finding other producers who are willing to work with them. Because of this social norm, weavers know that working with a particular producer over time can enhance their success in the rug industry. Hence, they follow direction and instructions from producers and are locked into working with a particular producer.

> After factories, working with home weavers is our second priority… finding suitable home weavers is difficult… [and] we support them socially and financially to keep them in our labour for increasing the number of products (IP,11).

Hence, a high level of supervision and a locked-in situation for weavers suggests a captive linkage is adopted in this production mode. Based on Bergvall-Kåreborn &

Howcroft's (2013) elaboration, weavers in this production mode are highly needed to 'show their commitment' to the success of producers by increasing their effort in making good quality rugs. By this level of commitment, weavers can stay in this industry under the high degree of producer supervision:

> We need weavers and they need us... however, all guidance in rug-making is from our sides and weavers have to enhance their ability to make good quality rugs based on our direction… or choose another occupation if their product is low quality (IP,3).

By this viewpoint, producers try to increase the captive linkage in this production mode when low-skilled weavers are locked into work with producers and follow all instructions in each rug project. To follow instructions, these weavers must have lengthy experience in working with a producer to learn how to make rugs for him. These weavers are not stable in the rug industry and because of their low capability and also cultural issues, such as getting married and leaving the industry due to the socio-cultural barriers, producers need to be sure that the investment in training of these weavers is cost-effective. As a result, producers make locked-in linkages and **captive** relationships with these low-skilled weavers to enhance their ability to follow the specific instructions and also have a certain investment in working with these weavers "in order to exclude others from reaping the benefits of their efforts" (Gereffi, et al., 2005, p. 87).

In the **low supervision, home-based** production mode, weavers have a good social and network position in their occupation. Their strong network ties with other potential buyers allow weavers to easily switch to other buyers with low cost. This enables them to work with a number of producers at the same time. Their capability to make high quality rugs provides good network ties, which allows them to use this network position as a source of power. Among weavers in Isfahan, these suppliers are known as actors with sufficient knowledge about different aspects of rugs, particularly about several design

elements and a variety of colouring patterns. These elements are rooted in the Isfahan culture and particularly from the north of the city where there are several several artistic and historical sites. This knowledge enhances their network power and allows them to make rugs with minimum direct and explicit coordination. Thus, a degree of independence in making high quality rugs has emerged in the behaviour of these weavers but it is not sufficient to enable them to work as independent weavers.

> I know that these weavers can make rugs at a good quality level…. Then I just ask them to make a rug with specific elements and they will make it in a couple of months (TP,11).

As such, the abovementioned elements and the weavers' characteristics influence the producers' behaviour in decreasing their level of intervention by providing complete instructions and relying on the weavers' ability to make rugs with few errors. This linkage is consistent with **modular** governance.

Finally, producers know that **independent weavers** can work with more buyers with a high degree of power in their relationships and with low switching costs. In addition, they do not have the same cultural limitations as the other weavers in Isfahan because their lengthy work experience in this industry has meant that their social position has removed the cultural limitations.

> in the way of increasing reputation to make known [branded] rugs in this industry, they have found that some cultural issues can be eliminated from rug-making...to increase the level of success (TP,13).

Hence, they are known as expert weavers and their knowledge and experience in rug production enables them to be professional suppliers with strong network relationships with a number of actors, including wholesalers, producers, and raw material providers. Such conditions increase their power to coordinate all stages of rug production by

themselves and the only transaction between these weavers and buyers is during the negotiation about the price of the products. In other words, the reputation of weavers and also some territorial embeddedness factors (such as living in Isfahan urban areas, familiarity with the artistic culture, and experiences in working with well-known producers in particular parts of the city) mean that independent weavers can manage all value-added stages of rug production and do not depend on working with specific producers. These issues provide a good source of power to enable them to negotiate the price of products. Thus, the governance type between these independent weavers and producers is a **market** linkage.

5-3-2 The role of embeddedness to explain why a specific production mode is dominant

The gender of weavers has an important role in explaining why making rugs in factories is the dominant production mode in the Isfahan rug GVC. The majority of weavers are women and producers are culturally constrained from having regular and routine inspections and several interactions with women in the rug industry.

> Working with women weavers has specific conditions… several contacts in weavers' homes is not a good and accepted behaviour in working with these weavers…. I do not want to have any problem for weavers because I believe if they are not comfortable then the quality of rugs will be decreased (TP,2).

Thus, providing a suitable environment for female weavers to make high quality rugs is essential factor in rug production in Isfahan. Rug factories in Isfahan are different from the factory production mode in other industries. Generally in Iran, mean work in factories, but in the rug industry and in the regions in which women are the majority of

suppliers, rug factories are 'women factories' which is a suitable environment for women to work outside the home.

> A rug factory is a woman's place of working…. Weavers are very comfortable to work in these places" (TP,9).

So, this embeddedness issue causes producers to accommodate the cultural issues of working with women by providing a suitable place for them to work In addition, home-based weavers, by the nature of their place of weaving, do not allow producers to have complete control over the production of high quality rugs, whereas rug factories help producers to avoid any conflict with this cultural issue and can employ managerial control over rug production.

> Specific rugs need our complete control…. Working with weavers who make rugs in their home does not provide such control and we need to think about different methods of rug making… (TP,11).

Also, the majority of weavers in Isfahan live in urban areas and producers set up rug factories close to the weavers' homes on the north side of the city, which is also near the rug centre, including grand bazaars, markets, and historical sites. The proximity and having the same culture in Isfahan city allows producers to have sufficient control over the rug weaving process, and encourages mutual understanding about a variety of elements in Isfahan rug designs.

> Art in Isfahan is in the blood of the people…. Weavers have different backgrounds in handicraft industries and are familiar with different Isfahan artistic elements which are vital in rug production (TP,13).

As such, the strong embeddedness in Isfahan city has meant that the rug factory production mode has been dominant. In addition, this embeddedness explains why the other production modes have also emerged.

Some groups of weavers can work in factories (if there is capacity to work), but because they do not have sufficient skills, they have to work at home. The cultural issue has meant that close interactions between actors (Yang & Liao, 2010) are hindered.

This group of weavers pays attention to the traditions and heritages in rug production, in which cultural and social backgrounds are important. As such, their influence on rug production is considerable. In this situation, producers are reluctant to accept all of these traditional effects of weavers' traditions on rugs and, therefore, they increase the codification of information that is needed to exchange knowledge with weavers to increase the control over rug production. In other words, producers adapt their strategies by increasing the design codification, which increases the cost of production:

> In our business we have to do any possible work to increase the quality of rugs… quality is the only means that we have for competition … (IP,2).

Thus, producers consider the socio-cultural, traditional and historical background of weavers and adapt their strategies and techniques in rug production to achieve a high level of supervision in this production mode. Low-skilled weavers are ordinary suppliers without the advantages of specific characteristics, such as professional and valuable weavers. Therefore, they do not have a specific social and network position and, consequently, lack power. These weavers are under the producers' control and the level of supervision has increased by producers to ensure that rug quality is guaranteed. Thus, the high supervision production mode in relationships with these **home-based weavers** has emerged.

The "*culturally proximate*" background (Hess & Coe, 2006) plays an important role in forming relationships, the production mode, and coordination mechanisms. Some home-based weavers are highly capable and professional who are not significantly influenced by traditional techniques in rug production. Thus, producers and weavers work in culturally proximate linkages in which the technical aspects of rug making and the role of artistic and cultural elements from Isfahan city are stronger in their relationships:

> If weavers understand the artistic soul of handmade rugs then their product is high quality and this is a cost-effective way… in Isfahan the difference between weavers who understand the effect of Isfahan culture and ordinary weavers is obvious… and these weavers can achieve more income via rug production (IP,3).

These weavers prove themselves in the Isfahan rug GVC as suppliers with artistic rug production and demonstrate that their role in this industry is important. These social and network positions increase the degree of professionalism in their occupation and the problems from the cultural barriers can be solved by this professional approach. This ability to conquer the limitations provides a degree of power for these weavers in which they are able to capture a level of legitimate authority in their own work and need less supervision. As a result, they work at home in this industry with **low supervision.**

The highest level of artistic products is made with the lowest level of supervision by a group of female weavers who are known as independent weavers who have specific skills and ability to make rugs using their own unique designs.

> These weavers are different from the others due to their ability to make high quality rugs and a professional view about this occupation …working with these weavers is easier than with the others…(TP,11).

Because of less cultural barriers, female weavers can manage all value-added rug production. Their families help them to enhance the social position in the rug industry

because income from rug weaving for these families is a significant amount or in some cases is the only source of income.

> It's not true to say that all weavers are confined in this industry because they are women…. Recently the view about this occupation is changed to the professional and artistic job….husbands and families support them and in some cases they [families] have learnt to for assistant weavers (TP,1).

Because of lengthy experience and a high social position as an artist-supplier, they do not have cultural and social limitations to work in this industry. In addition, they have strong network relationships because of their unique products and the number of relationships they have with buyers. These social and network positions, together with a low level of cultural barriers increase their power to switch to different buyers when they experience any pressure and difficulties such as interventions and impose about details on rugs. In this way, weavers can work **independently** during all stages of rug production.

5-4 Overall findings and conclusion

In this final section of the chapter, the overall findings and conclusion about the governance mechanisms including different GVC governance types and embeddedness issues is presented.

5-4-1 Conclusion about the GVC governance framework

The Isfahan region has four production modes and also four different governance types in the rug GVC. In this section, an overall conclusion about these production modes and governance types is presented. Table 7 summarises the analysis of the governance types in Isfahan region. It summarises the different coordination mechanisms in the Persian rug GVC in Isfahan for the four production modes according to the three variables of the

GVC approach involving the capability of weavers, codification, and the complexity of the transactions.

Weavers in Isfahan have different levels of capability in which highly capable weavers can work independently or in a low supervision production mode, while the other weavers make rugs in highly supervised factory production modes. It means if weavers increase their capability, they can work in a higher level of production mode. The variation between weavers who work in high supervision, home-based weaving and independent weavers is significant and the level of their capability is labelled as 'low' or 'high' based on a comparison of weavers in different production modes within each region.

Obviously, a rug weaver has a higher capability compared with, for instance, a traditional textile weaver. But if the capability of an industry actor is higher than an independent weaver (highest capability in Isfahan), this actor can become a producer, that is, can work in the rug industry as a branded producer. In addition, weavers with a lower capability than the lowest weavers (highly supervised, home-based weavers) are excluded from the rug industry because of the low quality of their products.

The above analysis of the capability of weavers focuses on their capacity to meet the producers' requirements, following Gereffi et al. (2005) who stated that the capability of suppliers should be sufficient "in relation to the requirements of the transaction" (p.85), and also that weavers should "have the necessary capabilities to meet the buyers' requirements"(p.87). In Isfahan, producers make rugs for different segments of the markets. They have set up four production modes where the output of each is suitable for specific markets both domestically and globally. Therefore, they select weavers with adequate capabilities for each production mode.

Table 7- Summarises of the governance mechanisms in Isfahan region

Production mode	Capability of weavers	Complexity of transaction	Codification	Explicit coordination	Gereffi et. al. (2005) Predicted governance type	Observed governance type	Alignment between identified and observed governance
Factory weaving	Low	High	Low	High	Hierarchical	Hierarchical	✓
High supervision home-based weaving	Low	High	High	High	Captive	Captive	✓
Low supervision of home-based weaving	High	High	High	Low	Modular	Modular	✓
Independent weaving	High	Low	High	Low	Market	Market	✓

Producers need to exchange complex information about complex designs and products with the suppliers. In relationships with independent weavers information about rugs is not exchanged between actors and they only negotiate about price. In the other production modes producers need to make rugs based on their own designs to ensure that the quality of the products is suitable for both domestic and global markets.

Finally, the last element is codifying knowledge to mitigate the complexity of the transactions for easier exchange. The findings from this research show that codification in the four production modes in Isfahan differs according to the characteristics of the weavers. These characteristics encompass the capability of weavers and the characteristics of regional elements, such as the ease of making relationships and cultural issues. In other words, this section seeks to explain why producers provide complete codification in one production mode but not in another.

In the Persian rug GVC, codification involves making instructions to explain different aspects about designs and colours. Each producer has a specific design method and, as a result, their instructions for such designs are unique and non-standard, which means they have to make instructions for each rug. Hence, on the one hand, this step in rug production is time-consuming and increases the cost of production, while on the other hand, producers have to make high quality rugs and transfer needed knowledge to weavers to create and capture greater value. Therefore, they increase the verbal interaction whenever possible.

In Isfahan, when producers make decisions about codifying knowledge they have to consider the ability of weavers to follow the instructions as well as the possibility of face-to-face interactions. In the factory production mode, these interactions are achievable and high codification is not required. However, in working with home-based weavers, face-to-face relationships are restricted and producers need to provide complete, codified

instructions. The last right column in Table 8 shows that the different codifiability in the production modes do not systematically increase (or decrease) with the capability of the weavers and/or explicit coordination. As such, the variation in codification should be explored in regional elements and particularly the embeddedness dynamics, which are provided in the next section.

In sum, Table 8 shows that the theory of GVC governance by Gereffi et al. (2005) works as expected for all production modes in which the observed and predicted governance types are matched.

5-4-2 Conclusions about the Embeddedness issue in coordination of the chain:

The observed and predicted governance types are consistent in the Isfahan rug GVC. Embeddedness of the Isfahan region explains the reasons for the emergence of the governance types for all production modes and for the dominant mode. Because of the high impact from the gender of the weavers, producers in Isfahan adopt different ways to make rugs to decrease the cultural and social issues. In other words, the strong societal embeddedness causes producers to consider weavers' requirements. In Isfahan, the producers' dominant role in relationships with female weavers from the culture within the rug industry and also the requirement of these weavers to work outside their home in a formal and organisational environment has caused producers to establish rug factories and internalise these female weavers in a suitable workplace.

Because most weavers are women, socio-cultural norms in the rug industry in Isfahan mean that weavers have a dependent role when producers coordinate the rug production (except when working with independent weaving). As a result, the producers' power has been increased in their relationships with female weavers. Thus, in rug factories and also in working with highly supervised, home-based weavers, because of the power asymmetry, equal roles in the relationships with producers are not provided for weavers.

This means that the market, modular and relational linkages have not emerged in these production modes. In other words, these governance types cannot emerge with a low skilled workforce. In rug factories, working outside the home in a place that is similar to the 'formal organisations' is culturally accepted for this group of weavers.

In the factory production mode, producers provide a production location by considering two elements. First, the need to provide a suitable environment for female weavers in which working outside the home in such places is culturally accepted. Second, producers can employ managerial and direct control of rug production by regular interactions with weavers in a *formal organisation shape* production mode. Such interactions are not possible in relationships with home-based weavers. As such, establishing rug factories solves such cultural issues, and producers have preferred this production mode in recent decades in Isfahan.

Chapter 6

Tabriz Region

Introduction

This chapter presents the results of the data analysis of the second case study: the Tabriz region. This data analysis addresses the research question in terms of evaluating the different production modes. In the first section of this chapter, a descriptive review of the Tabriz region is presented followed by the three main sections on the different production modes. In each of these sections, the production mode and relationships between the main actors is first evaluated, and then the observed governance type in these relationships is analysed, followed by a detailed analysis of the predicted governance types based on Gereffi et al.'s (2005) framework. In the third section, the impact of embeddedness on the governance of each production mode is explained, followed by an overall conclusion about the results of the governance and embeddedness

issues. The results of the analysis outlined in this chapter highlights that the low supervision, home-based weaving is the dominant production mode.

6-1 A review for the Tabriz region

In this section, some of the main characteristics of the Tabriz region are described to demonstrate the importance of regional elements on rug production in this province, including its geography, culture and the economic aspects. This region is important in the Persian rug industry because of the unique designs and different style of weaving and knotting in their rugs. Tabriz city is the capital of the East Azarbaijan province, which is the main territory in rug production in the North West of Iran. The rug industry in this region has the most globally recognized branded products, including the Tabriz and Heris[16] brands.

6-1-1 Geography of the region

The Tabriz region (East Azarbaijan province) is located in the North West of Iran covering 45,481 km^2 (equivalent of 2.8 % of Iran's land area). The region has three neighbouring provinces, and shares borders with the countries of Azerbaijan and Armenia in the North (see Figure 50). The distance of Tabriz city to the capital city of Tehran is approximately 600 km.

The population of East Azarbaijan province is less than four million people, of which 69% live in urban areas and 31% in village areas. It has 21 cities, 46 districts and 144 villages (Statistical center of Iran, 2014) which are scattered within the region. This province is located in mountain areas with cold winters and temperate summers. The average

[16] Rugs from a district area known as Heris are famous in global markets which are different in designs and quality but the Tabriz rug is the predominant brand from this province.

rainfall for the province is 296mm and 330mm for Tabriz city (Tabriz City Government, 2014).

Figure 50- The geographical location of Tabriz region.

The climate has sufficient rainy seasons that have provided a fertile land that is suitable for grazing animals, particularly for breeding sheep to produce wool. The obtained wool from this climate is rough and thick, which makes a coarse fibre for rug-making. As a result, wool from this region needs to be processed to make a fine fibre. Rugs from rural areas are made with coarse fibres and the products are of lesser quality and value than those produced in urban areas.

The geography of this region has some benefits for rug production. Rainy seasons and good water resources in this region allow sufficient quantities of wool and fibre to be produced within the region and actors do not need to obtain fibre from other regions. Thus, local prices and timely supply are the advantages for the rug industry. However, for weavers in village areas that are far from the main rug production territories such as Tabriz city for which transportation is difficult in the cold seasons (the time of rug weaving in village areas), access to the raw materials and sales markets presents some difficulties.

6-1-2 Cultural aspects of Tabriz

In a similar way to historical cities in Iran, rug production in Tabriz is affected by the culture of the old Grand Bazaar. The main bazaar in each old city has a specific cultural relationship within the traditional industries. For rug production, actors in the rug industry in this bazaar determine the basic elements of behaviours and relationships. In other words, the majority of relationships between actors in this region are determined by the culture within the Grand Bazaar, including interactions about the major criteria in design, use of specific colours, rugs made according to some commonly used sizes, and also the rug production process.

Rug production is an historical occupation for several families in this region. They have learnt to make rugs from their ancestors in which rug weaving is one of their main cultural aspects. This issue highlights the diversification of techniques in rug weaving because of different cultural backgrounds within families. As such, coordination of these weavers is more challenging for producers compared with other regions. In addition, the majority of weavers in the Tabriz region are men and the culture of rug production in this province is different compared to all other regions in Iran. Men weavers have different needs and characteristics in their relationships with other actors compared to the weavers in Isfahan who are predominantly women. These issues are analysed in following sections.

In addition, Tabriz city is the main destination for immigrant people particularly from the same Azari culture in the North West of Iran. People from villages and remote cities have migrated to Tabriz and close districts to exploit job opportunities and welfare. As a result, Tabriz city has a mixed culture with some proximate cultures from close territories in the last century. This diversity of cultural backgrounds, along with other factors, has influenced the development of multiple modes of rug production in the Tabriz region.

6-1-3 Economic aspects in Tabriz

Tabriz region is one of the main industrial territories in Iranian economy, being the centre of trade and economy in the North West of Iran (Administrative of East Azarbaijan province, 2014). This province is the fourth industrial hub in Iran with 33 industrial estates, 14 different industrial areas (including industrial parks), around 8,000 small industrial factories, and a variety of large industries, including petrochemical, steel, textile, tractor and machinery, and food industries. This province is the seventh largest province in GDP contribution with 4% (Statistical center of Iran, 2014).

Handmade rugs are an important segment of the light and handicraft industries in this region. Thirty-five per cent of rug exports from Iran are from this province of which more than 90% are from Tabriz city (Industry mining and trade organisation in East Azarbaijan province, 2014). In 2011-2012, Iran exported USD 550M of handmade rugs (Iran National Carpet Centre, 2014) in which Tabriz region's contribution was around USD 180M (32%) with Tabriz city contributing most of these exports (27%, USD 150M) (Industry mining and trade organisation in East Azarbaijan province, 2014). This share of exports decreased in 2013 to USD 80M (25%) (Iran National Carpet Centre, 2014).

According to INCC, the number of potential weavers in this province is around half a million with the majority being men; however, the number of weavers who have insurance cover by supporting INCC is around 120,000 weavers (Iran National Carpet Centre, 2014). This difference between weavers with insurance cover and other potential weavers shows that the majority of weavers are not professional and do not work permanently in rug production.

This section has provided a descriptive overview of the context of rug production in the Tabriz region. The next sections present the results in terms of the governance issues in rug production in Tabriz.

6-2 Governance mechanisms in the Tabriz rug GVC

This section provides the results of the analysis of the interviews about the different methods of rug production in the Tabriz region. The structure of this section is to evaluate the governance mechanisms from the analysis of the production modes in this region. The production mode is referred to as the ways that lead actors (producers) allocate the essential resources to exploit different opportunities in domestic and global rug markets. Similar to Isfahan, in the Tabriz region the characteristics of suppliers and the ways that producers make relationships with other actors are the main factors in shaping specific production modes.

In this region, slightly more than half the rugs are made in the urban areas of Tabriz city. The remaining production is from villages and districts across the region. However, rugs from Tabriz city are the main products for global markets. The specifications of products from these two different sub-regions (urban production in Tabriz city and village based production in rural areas) vary in terms of designs, colours, and size. Hence, the location of the suppliers is an important element in shaping the production modes in Tabriz. In urban areas, rug production has developed from famous producers in order to make high quality, unique, and branded products. These products have specific factors, such as elegant and fine knots, use of modern elements and colours in the designs, and attention to the demands of the markets.

> Rugs from Tabriz city are unique and different from rugs from the other small cities or villages…. These rugs are made by special hooks to have very fine knots on rugs …and as a result Tabriz rugs are famous for their silky texture [very fine and elegant] similar to silk rugs but made from wools (TP,2[17]).

[17] TP= Tabriz Producers; UR=Union Representative; HT=Hamburg Traders.

These characteristics are essential in Tabriz rug production and are also the measure to separate the high quality rugs from village rugs. As a result, urban producers only work with weavers who can make rugs with the above characteristics. Weavers must have sufficient technique to make rugs, which are known as Tabriz urban rugs.

> Weavers in urban areas have sufficient technique to make Tabriz rugs and we do not need to train them in order to make rugs based on our design…. Village weavers are not stable and their techniques are weak to make high quality rugs…. Despite urban weavers asking for higher wages, eventually they are cost effective with high quality rug weaving and less faults [in their production]. (TP,2).

On the other hand, rug weaving in village areas is a main occupation for many families (TP,1;TP,2). In particular, in winters when agricultural and other main jobs are limited, rug weaving is another option for families in villages to increase their income.

> Village weavers need rug production to earn money because in far districts and particularly in winters finding a job in the other places is difficult. They start to make rugs in this season and finish it in spring when the other jobs such as agricultural jobs are available (UR,2).

As a result, two main groups of weavers make two different quality rugs and are coordinated by different lead actors. In Tabriz city, urban producers coordinate rug production in urban areas, while in rural areas cooperatives are established to coordinate village rug production. The role of cooperatives will be explained below in the village weaving section (section 6-2-3).

These two groups of producers have arranged a series of different modes of rug production in order to exploit opportunities in the domestic and global markets. As explained in the previous chapter, the production mode here refers to a way that producers utilise different resources in order to make desire rugs. The production modes

in Tabriz city have emerged based on the producers' access to the place of production. In this vein, because weavers are men and the cultural limitations, especially of gender, do not exist as they do in Isfahan factories, producers have sufficient access to the looms in weavers' homes. Thus, **home-based weaving** is the main production mode in Tabriz city. The rest of the weavers within Tabriz city work in **rug factories**. In addition, the production mode in the relationship between **village weavers** and the cooperatives is different from urban weavers. As such, three production modes are discussed in this chapter: home-based weaving in Tabriz city; the factory system of production in Tabriz city; and village weaving.

Table 8 provides data on the structure of the rug industry in Tabriz. It shows that while the proportion of weavers in the Tabriz region is distributed across the production modes, more than half of the value creation in the industry stems from home-based weaving, with factories contributing less value. In contrast, approximately half of the rug exports come from factories. It means the rugs from Tabriz have high level of nationally buyers. Village weaving has a extremely low value and export segment in the industry. In other words, although a third of the weavers are in villages, collectively they only produce a value of 5% and an export share of 10%. This table is based on the data from different reports from INCC and the percentages are approximations from the reports.

Table 8- Important criteria in different production modes in Tabriz rug industry (Source: adapted from Iran National Carpet Centre, 2014).

	Home-based	Rug factories	Villages
Percentage of weavers	40%	30%	30%
Value creation	55%	40%	5%
Export rate	40%	50%	10%

The following sub-sections analyse the governance mechanisms in the three steps in each production mode. First, by reviewing the relationships in each production mode, the main criteria for their interactions are highlighted. Second, the observed and predicted governance types from Gereffi et al.'s (2005) framework are analysed. Third, the embeddedness concept is used to analyse the emergence of each production mode and provide an explanation for the observed governance mechanisms.

6-2-1 Home-based weaving in Tabriz

Producers in Tabriz supply branded and high quality rugs to domestic and global markets through the coordination of home-based weavers who are permanent and professional. Producers in Tabriz prefer to work these male weavers who make rugs at home because they can access the looms whenever needed and also their direct and regular control is possible.

> We can work directly with men weavers in their own home and this is our advantage compared to the other provinces…. The best quality of rugs are made in such ways (TP,2).

> The best weavers are permanent men weavers within urban areas of Tabriz city. We can control all aspects of rug production at a low cost ….. (TP,1).

These weavers have accepted such control because working independently without coordination by famous and branded producers causes less acceptance within the markets and also provides a lower income from this occupation. The structure and culture of the rug industry in Tabriz also constrains skilled weavers from working independently. They have to increase their reputation over many years and have sufficient experiences and knowledge to be known as producers.

> Tabriz rugs must to be made with specific characteristics in which a number of producers in Tabriz can make such rugs. Other products are copies of famous designs and will be distinguished by expert buyers (TP,1).

Although producers have control over decisions about all of the rug production stages, they know that these weavers have a degree of influence on rug production that can affect some elements of rugs. Weavers can make some mistakes while preparing and weaving rugs but producers accept such differentiations if these errors are correctable. Because weavers are skilled, social convention requires producers to accept a degree of the weavers' authority over weaving.

> The majority of [home-based] weavers' technique is aligned with our designing and we basically select weavers in terms of their ability to make a specific design. They have made some different [elements] but we can accept or fix them if are not significant (TP,5).

Figure 51 shows the value chain activities and the influence of the main actors on different stages of rug making in home-based weaving in Tabriz city.

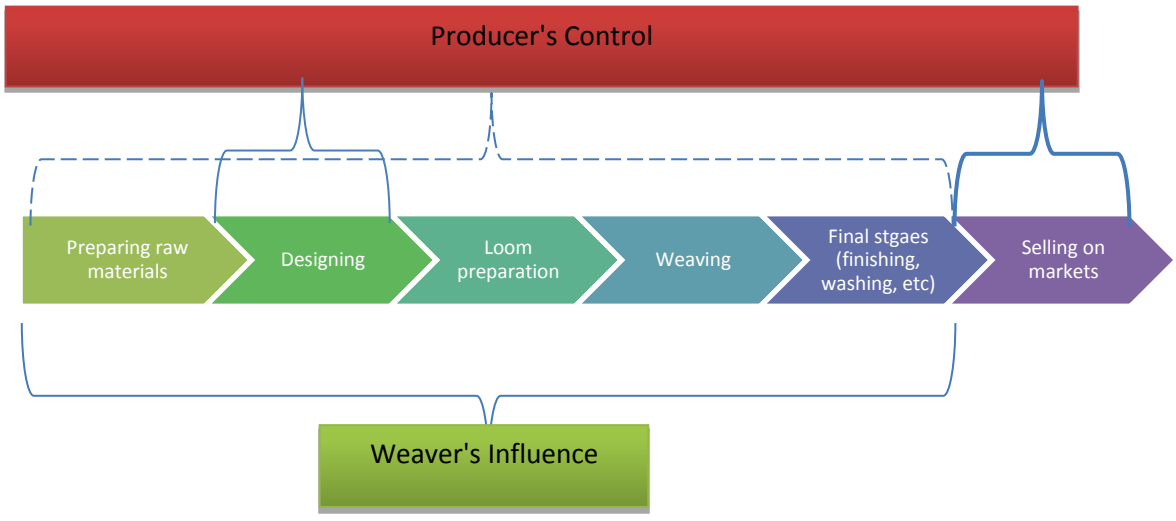


Figure 51- Home-based production mode in Tabriz.

As this figure shows, because rug weaving occurs in the weavers' homes, the majority of the value-added stages in rug production are under the direct influence of the weavers, and the producers have less control over some stages, except with the designing stage. Because these weavers have sufficient capability to make rugs based on the producers' orders and they can follow the specific written instructions and verbal directions to make high quality rugs, the level of supervision needed by producers is low. Weavers make rugs based on information from producers, and with inspections producers can fix the possible errors or provide further direction. In the next section, the governance mechanisms in this production mode are analysed.

6-2-1-1 Governance mechanisms in home-based weaving

In this section, first, the results of the content analysis of the interviews are discussed to identify the observed governance mechanism in home-based weaving in the Tabriz region. Second, the predicted governance type is analysed based on the three Cs. A comparison of these results is provided a basis for further explanation by the embeddedness issue.

6-2-1-1-1 Observed governance in working with home-based weavers in Tabriz

More than half the weavers in Tabriz work permanently and at home in rug production, and have sufficient skills to make high quality rugs. As such, they are important actors in the rug industry in Tabriz. The origin of their knowledge is from their families but working with famous producers has enhanced their techniques and they are able to make all designs.

However, they have some weaknesses in working independently and/or in making branded rugs similar to producers in Tabriz city. Some of the main issues that mean they cannot manoeuvre properly in the rug industry include weak network ties with other

actors, a lack of some required characteristics such as leadership and an ability to allocate resources, and the most important issue is the strong network among urban producers in Tabriz city.

> All famous [branded] producers in Tabriz are from several generations of ancestors who were well known producers in Tabriz…. It is not easy to be producers [from a weaver's position] because accepting the new individual by other producers, wholesalers and other actors is almost impossible (TP,3).

Thus, home-based weavers do not have sufficient power to manoeuvre independently in the rug industry. Rather, working with famous and branded producers helps them to achieve a proper income from this occupation. However, these home-based weavers are skilled and professional in their job and they have a good level of tacit knowledge in rug weaving from their families and also from their experiences in professional life. As a result, they have a degree of power that lets them work with producers with a low level of supervision.

> We need these [home-based] weavers because they can make rugs based on our design…. We try to keep them happy and satisfied… it is possible that they shift to work with the other producers (TP,3).

Producers do not impose managerial control when working with these weavers because of the degree of weavers' power, as the switching cost for weavers to work with other producers is low. However, producers are cautious about having professional behaviour with these weavers because this production mode is the main way to make specific, high quality and branded rugs.

> Our weavers are sensitive to impose a difficult situation and/or any pressure about making rugs based on our details…. We try to have a friendly behaviour and support them to make good quality rugs (TP,3).

> Obviously I tend to make high quality rugs… and one way is to control all aspects of rug production… support and attention to weavers are important for our aims (TP,1).

As a result, producers employ high, explicit coordination mechanisms to make specific and high quality rugs but instead of managerial control (which can lead to conflict with weavers), they employ face-to-face interactions over the duration of the production, which is achievable in the Tabriz region because of the weavers being male. Consequently, verbal direction, which is a cost-effective way to exchange knowledge, is applied in relationships with these weavers. Thus, the coordination mechanism within home-based weaving is a low level of supervision and the observed governance type is **relational**.

6-2-1-1-2 Predicted governance types in the home-based production mode in Tabriz

In order to predict the governance type based on Gereffi et al.'s (2005) approach this section analyses the data to identify the level of the three Cs.

Complexity of transactions: As mentioned above, the highest quality of rugs is made in the home-based production mode in Tabriz:

> Handmade rugs which are made by weavers in urban areas are high quality with specific design and colours which will be sold in high price markets (TP,1).

Making rugs with this level of details needs complex information about all aspects of the rug. Compared to working with weavers in rug factories, some verbal interactions and using graph paper for several of the instructions shows the ***high*** complexity of information in this production mode.

Capability of weavers: Almost all weavers in home-based weaving are permanent actors in rug production. As a result, they have to be skilled weavers to stay in the Tabriz rug

industry. These weavers are almost at the same level of capability and they are suitable to work with a low level of supervision and their capabilities are higher than factory weavers. Thus, compared to the other weavers, their capability is ***higher*** than other suppliers in the region.

Codification: Producers employ different ways of exchanging information about the complex products and codifying knowledge that are based on several elements. One major group of elements is the characteristics of weavers, including their place of living, gender, cost of codification, and other regional or technical issues. In working with skilled male weavers in urban areas, frequent interaction and face-to-face relationships are available. Thus, less codification is cost-effective for producers.

> Some weavers can make rugs with their own technique [knowledge] and we just provide raw materials, some directions, and buy it at a good price (TP,3).

Such an opinion shows that producers tend to work with skilled weavers who are familiar with different aspects of the design, and rug production is low cost because of fewer errors and the requirement for minimal preparation of costly written instructions. Technically, each home-based weaver makes a rug with a unique design. In this vein, making complete written instructions for a single rug is not cheap as it is a time consuming process. Producers provide instructions on graph paper to support their frequent and verbal directions. The size of the graph paper used is approximately 1-2 Gereh (refer to section 4-2-1-1-2 for more details about Gereh). Thus, the level of codification in this production mode is not high, as producers do not provide complete written instructions for rug production.

According to Gereffi et al.'s (2005) model, a ***relational*** governance type would be expected in this production mode because the linkages between producers and weavers

are characterised by high complexity, low codification, and a high capability of the weavers.

Conclusion about governance types: Comparison of the observed and predicted governance types suggests that the theory of GVC governance works as expected and the relational governance type is identified both by the observed and predicted ways. However, some important issues from embeddedness provide further explanation about the production mode and governance type in the next section.

6-2-2 Factory production mode in Tabriz

In Isfahan, producers established rug factories to make desirable and the highest quality of rugs but in Tabriz home-based weavers make the highest quality of rugs and rug factories he been established to increase the quantity of products. The home-based weaving production mode does not provide a sufficient volume of rugs for domestic and global markets.

> With rug factories, we can make a number of rugs in the same design and sell them to the markets which the demand is for the similar design rugs… such as traders in Hamburg" (TP,4).

As a result, the reason for establishing rug factories in Tabriz is different from Isfahan. In the Tabriz rug industry, a group of weavers tends to work outside the home to have a formal occupation, and having a home-based job is not preferred by this group of weavers as a professional occupation. Hence, producers employ weavers in an equipped place in a different capacity.

The factory environment is a suitable workplace for men where producers can manage factories more easily than in other provinces where cultural issues in working with women provide a substantial barrier to having direct relationships between actors. In this

province producers and weavers are men and frequent personal relationships are employed to manage rug production.

> In rug factories we can make all designs and sizes of rugs for a variety of buyers… working with men weavers lets us be flexible in these orders (TP,3).

Traders in Hamburg need to supply rugs to big retailers, such as IKEA, Target (USA), and Lutz. Usually these retailers ask for a very large order (more than 100 of a single design for each branch of a store) of handmade rugs in a couple of designs and colours. The best suppliers are producers in Tabriz who make these in rug factories.

> We order a large volume of rugs in a couple of designs for big retailers across the world….most of these rugs are made in Tabriz (HT, 2).

Producers in Tabriz have established two types of rug factories based on the characteristics of weavers in rug production. The first group is experienced weavers for whom rug weaving is their only occupation, who are professional in their job and have sufficient skills to make rugs and follow producers' directions. The final product of this group of weavers is high quality and suitable for top level markets. These weavers have a high degree of influence on the rugs but because of their capability, their influence has less deviation from the producers' aims. It means that weavers are able to change details on rugs without having made a mistake but they prefer to work under the producers' control.

Figure 52 shows the value chain activities and the level of influence by actors in the first type of rug factories in Tabriz.

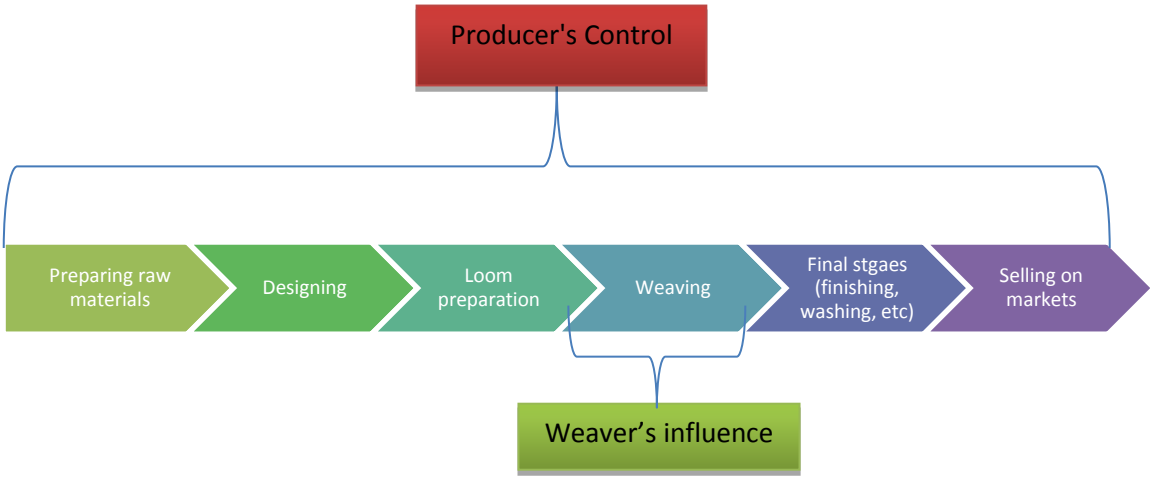


Figure 52- Value-added chain in the first type of factory production mode in Tabriz.

The second group is temporary weavers who have seasonal and/or other main jobs in which rug weaving helps them to increase their income. Because they have less experience and their knowledge is mostly rooted in their traditions, producers need to increase the level of supervision in the second type of rug factories. As a result, the cost of production is increased in working with these weavers. With such a high degree of supervision, the influence of weavers in rug weaving is constrained by producers. Figure 53 shows the value chain activities and the level of influence by actors in the second type of rug factories.

According to the interviews, the size of factories in Tabriz is usually small and the main aspect of the factory production mode in this region is that factories might be established for a project and then closed down once the project is completed. The size and temporary status of rug factories affect both high-skilled and seasonal weavers. Thus, even highly skilled weavers are not employed permanently.

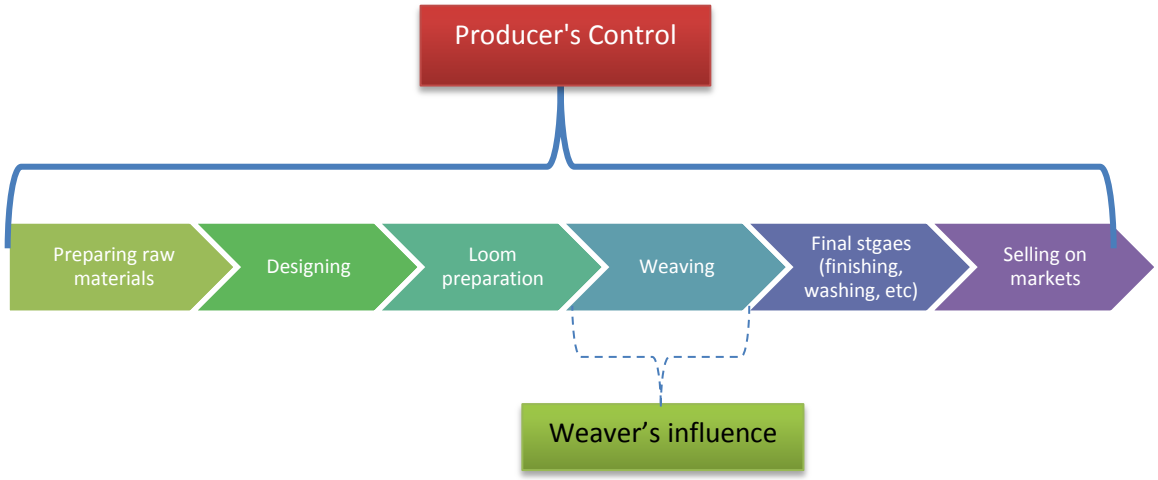


Figure 53- Value-added chain in the second type of factory production mode in Tabriz.

> I would not have many places of production because the cost of rug production will be increased in the long-term ….we usually decide to have further rug factories based on new orders. (TP,4).

In working with both groups of weavers, producers provide all facilities and requirements, including designs, fibres, looms, places, and some financial and social supports for the weavers.

6-2-2-1 Governance mechanisms in rug factories in Tabriz

In this section, the observed governance type in rug factories in Tabriz is analysed followed by a prediction of the governance type from the three Cs. Then, a comparison of these two governance types is presented in terms of the embeddedness issues.

6-2-2-1-1 Observed governance in rug factories in Tabriz

Less than half the weavers in Tabriz city are employed in rug factories. Producers have more challenging relationships with these weavers because of the inconsistency in the weavers' characteristics. Working with experienced weavers and also seasonal rug suppliers in rug factories needs more time and cost. The main aim in rug factories and working with both groups of weavers is to control the rug production as much as possible. Usually producers employ weavers from each group of weavers separately because they need to adopt different behaviours in working with weavers.

> Rug factories provide an environment to enhance our control on weaving stages and can manage a number of weavers simultaneously (TP,4).

In working with both groups, producers employ weavers in the producers' location of production and provide all materials to make rugs. Producers need to have a way of rug making in which complete control is possible. Working with home-based weavers does not let them have such supervision. One major reason that they have established rug factories for centuries is to provide an environment for producers to adopt complete control of rug production.

> Rug factories are essential in our success in markets. We can manage the quality and quantity of products all in our control… we determine all details and where quality is important the speed and the volume of rugs is also important (TP,1).

As a result, producers have a high degree of power in rug factories. Producers are cautious in exerting strong managerial control in relationships with experienced (permanent) weavers, because of the low switching cost for these weavers. These weavers are sensitive to the behaviour of producers and would not work in a problematic environment. If producers increase the level of control, weavers might shift to work with

other producers and investment in learning to work with these weavers will be lost. However, weavers know that long-term relationships with one producer provide significant advantages, including increasing income and knowledge. In addition, they prefer to work in a place that is similar to the formal organisations. Thus, they accept working in a managerially controlled situation.

> Weavers who are working in factories can go to work with other colleagues but they prefer to have long relationships with one person…. They have more benefit in working in such relationships….and accept to work with our complete direction (TP,2).

> specific design in rug factories will be allocated to the tested and known weavers….seasonal workers [temporary weavers] have to wait for repetitive rug weaving jobs [massive orders] (TP,4).

For the second group of weavers who are at a lower capability, producers know that the high switching cost causes these weavers to obey their direction. Thus, a high degree of power by producers determines the coordination of these weavers. Both groups of weavers accept employment and only work with one producer. By a high level of explicit coordination, weavers are internalised in producers' rug factory production and weavers have no external linkage to the other producers. These factors show that the governance type is a **hierarchical** mechanism in working with both groups of weavers.

6-2-2-1-2 Predicted governance types in rug factories in Tabriz

In this sub-section, the prediction of the governance type based on Gereffi et al.'s (2005) approach is analysed by evaluating the level of the three Cs.

Complexity of transactions: As with the Isfahan factory production mode, the level of complexity of information about colour, design and the way weaving is undertaken in rug factories in Tabriz is high.

> We make a number of similar designs for specific [target] markets….such production is our competitive value in different markets…. Making a number of high quality rugs is not an easy job for a variety of competitors....making similar rugs with the same design and quality is time consuming and have more cost (TP,2).

Thus, **complex** transactions in the rug factory production mode occurs between actors to make such quality rugs.

Capability of weavers: As explained above, weavers in rug factories in Tabriz are of two types based on their capabilities. The first group are experienced and permanent weavers who can make high quality and specific rugs for producers. These weavers have a high level of capability to make specific designs but they have a lower capability compared to those who work in the home-based mode. The second group are seasonal suppliers and temporary weavers who have minimum knowledge and skills about a variety of techniques in rug weaving. They need more supervision and direction to make acceptable rugs. As such, their capability is lower than all other weavers in urban areas in Tabriz. In sum, permanent weavers are **highly** capable suppliers and temporary weavers are suppliers have a **low** level of capability. Although all rug weavers need at least a reasonable level of capability to produce a rug, the comparison of weavers as high and low in capability provides an accurate distinction between of different weavers with significant variation in capabilities.

Codification: Working with different weavers is more challenging in order to coordinate rug production. Codification in the factory production mode in Tabriz is analysed

according to three issues: the size of graph paper; the details on the graph paper; and the degree of instruction that weavers follow.

Permanent weavers, despite being skilled, have a lower capability than home-based weavers, so they require a degree of supervision to make good quality rugs; hence, producers provide a level of written instruction which is sufficient for these weavers to make high quality rugs. In this way, producers provide graph paper in 2-3 Gereh which is a moderate level of codification (refer to subsection 4-2-1-1-2 for more information about the moderate graph paper size), and this level of codification is more than the other production modes in the Tabriz region. In other words, working with these weavers in rug factories and the level of weavers' capability allow producers to provide them with directions using more written instructions.

> For weavers in factories, different parts of the design are provided to be sure about the correct pattern…. Different elements and signs are added for more accuracy….for some weavers these element mean that they are be able to make rugs without errors (TP,1).

The details on graph paper are similar to Isfahan but due to knots being different in this region ("Turki knots" with double layer knotting in this province and "Farsi knots" with single layer knotting in all other regions), a unique technique is used in Tabriz to codify knowledge that provides more details on how and where each knot should be made. To determine the correct knots in the best places, "dotting" is the technique that producers have used to increase the quality of rugs. Figure 54 shows a comparison of the correct and incorrect dotting in blue circles. Thus, the dotting technique provides more accuracy in weaving patterns and lets weavers know the correct weaving path. This written instruction is sufficient to make high quality rugs and, compared to the other production modes in Tabriz, codification levels are **high** for permanent weavers to make rugs based on such codified information.

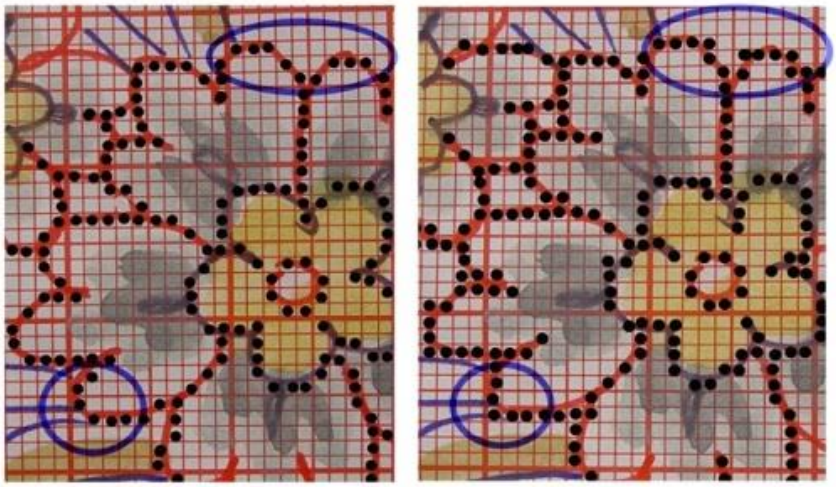


Figure 54- Correct (left) and incorrect (right) dotting on graph paper (kashanu.ac.ir, 2014).

Producers need more verbal and daily interactions with temporary weavers to make acceptable rugs. The different size of graph paper and the dotting technique are not sufficient to prevent faults on rugs and weavers with a high level of influence in the weaving can make low quality rugs.

> Providing different parts of design is not similar for all weavers…. Some weavers cannot make good quality rugs even if we provide more detailed direction (TP,3).

As a result, producers employ significantly higher levels of verbal interaction and daily control over rug production and, therefore, the level of codification is **low** when working with temporary weavers in rug factories.

Because the linkages between the main actors for permanent weavers are characterised by high complexity, high codification, and high capability, a **modular** governance type is predicted based on Gereffi et al.'s (2005) framework. However, a **hierarchical** linkage is predicted for temporary weavers because of the high complexity, low codification, and their low capability.

Conclusion of governance types: The two groups of weavers in Tabriz rug factories have different coordination mechanisms. Observed and predicted governance types are not aligned for the permanent weavers in factories where the modular predicted governance is not matched with the hierarchical observed linkage. Weavers have sufficient capability to work in a modular linkage but producers with a high degree of power need rug factories for mass production and have a high level of control in rug making. However, for temporary weavers in rug factories, both the observed and predicted governance types are hierarchical. The embeddedness section (6-3) provides further explanation about these issues.

6-2-3 Village weaving in the Tabriz region

Rugs from rural areas in Tabriz region are important in the Tabriz rug GVC because they have specific buyers in global markets and also a significant interest from major traders (in Hamburg and within Iran).

> We have a number of buyers who prefer to buy rugs that to some extent are far from standard elements….Village rugs from Tabriz province have such characteristics in design, colours, and size which are suitable for these markets. (HT,2).

Despite such demand from global markets, urban producers are reluctant to work with village weavers because these weavers adhere to their own traditions in rug weaving, and the producers believe that village rug production is not a cost-effective business. In addition, because of the remoteness of village weavers from the urban producers in Tabriz city, only a small number of village weavers have direct and strong relationships with these producers.

> Tabriz rugs have specific characteristics which are different from all other rugs in the Persian rug industry….. Village rugs are different products …. With different specification and buyers" (TP,1).
>
> I can manage urban weavers and make high quality rugs for international markets and do not need to work with village weavers (TP,3).

Village weavers have a low degree of power to manoeuvre in relationships with different actors, including producers, wholesalers, and buyers, and so reaching a fair price for their products is difficult. As a result, in recent decades cooperatives have emerged in each village to facilitate its weavers both in buying raw materials and selling rugs to the target market. Cooperatives are coordinated by 'the union of village cooperatives' that was established in 1996, and has sufficient power within the industry from their linkage to domestic and global markets. They organise weavers and rug production, control the price, have access to the raw material producers, and have linkages to the governmental and institutional actors. They have such power to overcome the unfair and disruptive role of some brokers and wholesalers who only look for rugs in village areas to buy them at a very low price. Village weavers and cooperatives provide such levels of power for the union because they would not be known as low price suppliers in the rug industry.

The role of the union is to coordinate the cooperatives, provide raw materials and loans, guarantee the buying of rugs for a fair price, provide training courses, and solve conflicts between actors in the village-weaving production mode. The union has tried to solve such issues as weavers not reaching a fair agreement about the time of completion with cooperatives, the price of the raw materials, or the price of the rugs.

Almost 30 village cooperatives are registered by the union of village cooperatives (TUR,1), and is the main actor to make linkage to global markets by selecting and exporting rugs for specific buyers in global markets. The union has strong relationships

with the traders in Hamburg where a union representative provides a linkage to global markets for its products (HT,2; TUR,1).

Cooperatives play a "producers'" role in their relationship with village weavers and coordinate market linkages for these weavers. Two groups of village weavers have linkages with cooperatives. One group has seasonal and mostly agricultural jobs in rural areas. These weavers work on a loom with their families during free time and in between their seasonal work, and rug production is the complementary source of income for them. They have learnt the traditional ways of rug weaving from their ancestors that are specific to their own village. Their investment in increasing their knowledge and technique to make better quality rugs is not viable and they just make rugs and sell them to the cooperatives (or to the wholesalers and other potential buyers). Figure 55 shows the value added activities and the control at different stages by the actors.

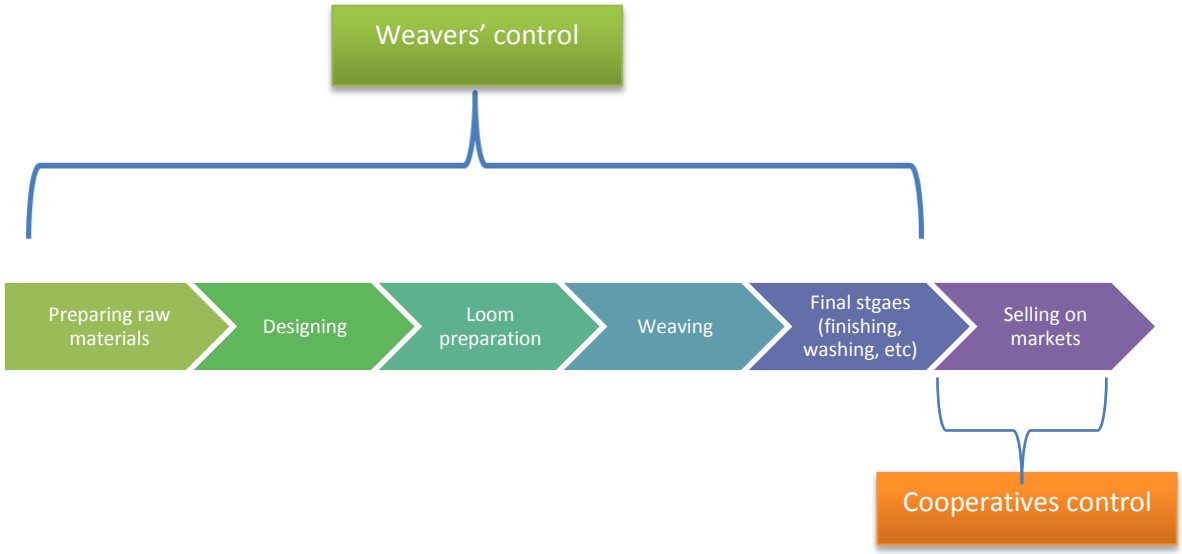


Figure 55- The control of the rug production stages in traditional village weaving.

The other group of weavers live in rural areas close to Tabriz city and need to have regular income from weaving. To increase their income they enhance their skills by

learning from cooperatives and particularly from training courses by the union of cooperatives. The union of cooperatives has strong relationships with traders in Hamburg and it gets up-to-date information about current demands in the global markets that it tries to transfer to the supply base.

In this way, weavers understand that working under the cooperative's direction can be more profitable. As such, they use the cooperative's directions and obey its guidelines in rug production, particularly in terms of making rugs and using specific designs and colours. Figure 56 shows the value added activities and the scope of control of each actor.

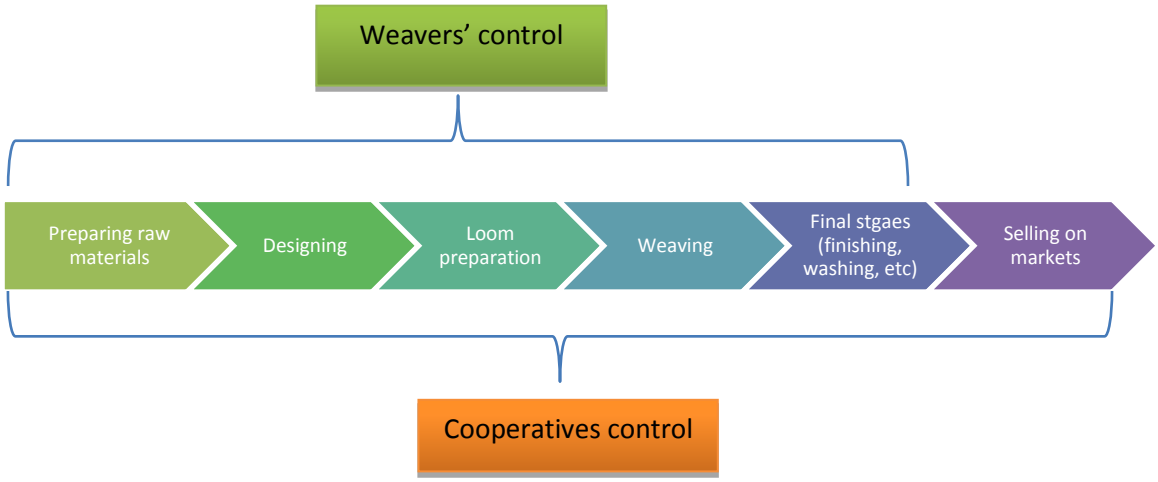


Figure 56- The control of rug production stages in trained village weaving.

Hence, working with these two groups of weavers has different mechanisms and cooperatives employ different governance types in working with each group. The next section explores the governance mechanisms in this production mode in the Tabriz region.

6-2-3-1 Governance mechanisms in the village weaving production mode

In this section the observed governance mechanism is analysed, followed by predictions from the three Cs.

6-2-3-1-1 Observed governance in the village weaving production mode in Tabriz

A cooperative of rural weavers has emerged in each village to provide support and organisational duties similar for producers in the other regions. Their activities include providing raw materials and fibres, helping weavers in dyeing fibres and supplying any other facilities, such as looms and tools. Also, some main supports, such as sending the active weavers to governmental organisations to receive support, such as insurance and loans are provided by these actors. The union of cooperatives also provides training courses, and cooperatives send village weavers to these courses. However, the most important task of these cooperatives is to buy or arrange the sale of village rugs in cooperation with the union. Cooperatives have aimed to make a viable rug industry in rural areas and their supports cut the unfair black market that some wholesalers and brokers try to create to buy the village rugs at the lowest price. These interactions with rural weavers are coordinated differently in working with the two groups of weavers.

> Rug weaving in rural areas has been reconstructed by supports from the cooperatives…. We try to increase our supports to achieve greater market access (UR[18],1).

Traditional village weavers are not permanent rug weavers and have seasonal and agricultural jobs, and because rug weaving is the second source of income for these weavers, they are not motivated to increase their ability to make higher quality rugs:

[18] Union representative

> Unfortunately, we have not been successful to increase the quality and traditional techniques of the majority of village rugs but in our plan we can enhance the quality and income from village rug production…. This is because some [village] weavers would not tend to attend training courses or work with some experts during rug weaving (UR,2).

The main transaction between these weavers and cooperatives is to buy completed rugs and negotiate the price.

> Usually weavers know the price of their products but we need some time to talk more about the value of a rug… eventually we reach a price which is fair for both parties (UR,2).

The relationships between these actors are characterised by a low, explicit coordination and a **market** linkage is observed in their relationships.

Trained village weavers have similar capabilities but they are willing to increase their income from rug weaving. Over time, they will increase their capability and the quality of their products. They have had some training, which is provided by the union of cooperatives, but they still need to be coordinated by cooperatives to have greater income. The most important progress in the union's program was the acceptance of village weavers to work with cooperatives and get some guidance during rug production.

> These weavers are not very good in making accurate and new designs but they listen to some advice and utilise it in their products (UR,1).

These weavers are in a situation where the cooperatives' behaviour can change their decision about working in a specific production mode. Because these weavers are in a professional occupation, they might decide to move to Tabriz city and work with urban producers if they feel undue pressure from the cooperatives.

> We cannot impose great pressure on these weavers which causes them to switch to work in different ways [such as send the rug to the markets even with a lower price] (UR,1).
>
> Our advice should be at a level that they do not feel trouble or difficulties (UR,2).

As a result, weavers are not in an internalized production mode in that they are not employed by cooperatives but can make rugs for a number of potential buyers. However, they also do not sell the rugs on the open markets because of unfair prices, as they have insufficient power to be successful in the market's negotiations. Cooperatives exert a high level of explicit coordination and use verbal direction and person-to-person interaction to increase the income of both the cooperatives and the weavers. In sum, weavers do not have sufficient power to work in the main rug markets, but because of their characteristics in terms of the possibility of switching to the other potential buyers, cooperatives accept this different source of power. Thus, a **relational** linkage is the main governance type for this group of weavers.

6-2-3-1-2 Predicted governance types in the village weaving production mode in Tabriz

In this section, the governance types of the two village weaving types is analysed to determine the degree of the three Cs.

Complexity of transactions: Transactions between cooperatives and village weavers exhibit different degrees of complexity depending upon the type of weaver. In relationships with *traditional* village weavers, actors only negotiate about the price and product specifications are not negotiated. Hence, these transactions are characterised by a relatively **low** level of complexity in this production mode.

With *trained* village weavers, cooperatives are actively engaged in rug weaving with a high level of interaction. The union of cooperatives tries to pass on market knowledge from the traders in Hamburg to the cooperatives. As a result, a lot of complex information needs to be transferred to the supply base. Hence, a **high** level of complexity of information exchange occurs in these transactions.

Capability of weavers: Traditional village weavers are not skilled and they also do not increase their ability to make better quality products. However, because their products have specific buyers, particularly in global markets, cooperatives do not try to invest in increasing their capability.

> Rural rugs are sold in global market with a good price and quickly. This is because some buyers tend to have non-standard and nomad type of rugs…. To some we would not increase the pressure to have different rugs (UR,1).

In other words, their products do not need further improvements to supply to the low price (or low quality) markets or to specific buyers. Hence, their capability is sufficient for supplying their products to these markets and they do not need to increase their capability at this level of activity in specific markets. As a result, their capability can be considered **high** in terms of the quality of both the products and markets.

On the other hand, trained village weavers need to work with cooperatives more actively and enhancing their rug-making knowledge for specific market demands is essential. Thus, their capability for making rugs needs to be more advanced and based on global demands. Thus, their capability is sufficient and considered at a **high** capability level.

Codification: Cooperatives and traditional village weavers negotiate the price of products. Such negotiation has sufficient codification in terms of the issues about the price, and no explicit information is required to be transferred about the content of the products apart from the price.

> Weavers bring their rugs to our place and we determine a price and have negotiations about that…. There are some fixed criteria about the pricing system which weavers are aware about these factors….. Usually we do not have any conflict because we try to set fair prices (UR,2).

Thus, the small amount of codified information about the negotiation of the product's price is sufficient to make the transaction.

In working with trained village weavers, cooperatives provide designs based on their interaction and knowledge about global markets from their representatives in Hamburg. The cooperatives "work with famous designers and provide codified design for these weavers" (UR,1). As such, the level of codification is **high** when working with trained village weavers.

Based on Gereffi et al.'s (2005) framework, a **market** governance type is predicted for traditional village weavers because the relationships between them and the cooperatives are characterised by low transaction complexity, high codification, and a high (or sufficient) level of capability of the weavers.

In working with trained village weavers, a **modular** governance type is predicted because of the high levels of complexity and codification, and the high capability level of the suppliers.

Conclusion of governance types: The two groups of village weavers in the Tabriz rug industry have different observed and predicted governance types. For traditional village weavers, both observed and predicted governance types are matched and identified as a market linkage. However, in working with trained village weavers, the observed (relational) and predicted (modular) governance types are not consistent. The next section on the role of embeddedness provides further explanation of these issues.

6-3 The role of embeddedness in the coordination mechanisms of the Tabriz rug GVC:

In this section, the explanation about the role of embeddedness in coordination mechanisms in the Tabriz rug GVC is provided. The way that governance occurs and also the impact of embeddedness in explaining the reasons for the dominance of a specific production mode in Tabriz are evaluated.

6-3-1 The role of embeddedness in shaping the governance of different production modes in the Tabriz rug GVC:

In Tabriz, producers make their high quality rugs in relationships with home-based weavers. As explained above, some weavers in Tabriz city tend to have a job with a high level of social position in which they are known as artists in rug production. Thus, they are reluctant to work in rug factories and they make rugs at home.

> Weavers in rug factories are a different group of weavers ... other weavers [home-based weavers] tend to work in a solo environment [their own place with less trouble] (TP,2).

These capable male weavers are well known in rug markets and have a variety of linkages with a number of buyers. However, their network interactions do not provide sufficient power to enable them to work in the Tabriz rug industry as independent weavers, but this power is enough to provide a degree of legitimate authority in their home-based occupation. With the possibility of frequent interactions and working in a proximate culture, producers can ensure that these weavers are able to follow verbal instructions and they employ a high level of explicit coordination to make unique rugs with these weavers.

The proximity of these actors assists them in having such close interactions. As such, producers control the rug production by applying a low level of supervision in relationships with capable male weavers to make unique and innovatively branded rugs. In other words, making rugs in this production mode is important for producers and they need to control all details of the rugs, but because weavers are capable, they do not need a high level of managerial supervision to make high quality rugs.

Producers order rugs based on the prepared design but capable weavers are not locked-in to work with specific producers and can make rugs for a number of buyers (usually they have a couple of looms in their home). By face to face interactions and a high level of tacit knowledge, a **relational** linkage, which is observed and also identified based on the three Cs, is reinforced by considering the above regional elements in Tabriz.

In summary, this production mode is important for producers in Tabriz because they make high quality rugs by working with home-based weavers in a low cost coordination. Both observed and predicted governance types are recognised as a relational linkage between the weavers and producers. Hence, embeddedness explains further elaborations in terms of highlighting the role of regional elements in the emergence of this production mode and in shaping relational governance type.

Embeddedness can explain the emergence of the governance type in two different factory production modes where the observed and predicted governance types are not matched with one of these modes (permanent weavers in the factory production mode). The governance type in working with permanent weavers cannot be a modular linkage as predicted by Gereffi et al.'s (2005) framework because producers have specific characteristics that impact on the emerging, specific governance type.

First, producers in Tabriz city are known as the source of innovative and newly designed rugs in which their brands are famous for buyers in global and domestic markets. The

culture of Tabriz has provided extensive respect and value for these producers. This level of social status means that producers have a high degree of power in relationships with the other actors and particularly in working with weavers in rug factories. Thus, the switching cost is very high for weavers. Despite permanent weavers in rug factories being capable suppliers, they have accepted that producers are knowledgeable actors with a good reputation in rug markets.

> Weavers believe that working with famous producers will provide more income because of our historical role in the rug industry in Tabriz (TP,5).

Hence, weavers know that unequal power with the producers is the nature of relationships in this production mode. These issues make it difficult for weavers to have person-to-person interactions and utilise their tacit knowledge during rug production.

Second, the proximity of producers to the rug centre in the *Grand Bazaar* in Tabriz means they have access to all requirements and sufficient power to manoeuvre in the rug industry as lead actors. Producers can make relationships with different actors, including raw material providers, weavers, other producers, wholesalers and buyers. In contrast, because producers establish rug factories close to the weavers' places of living (which are far from rug centres and the grand bazaar) weavers have a lower chance of daily access to the facilities and also do not have regular and strong relationships with the other actors because of few interactions with which to increase their network power. In other words, a sort of agglomeration around the Grand Bazaar does not provide a source of power for weavers who work far from Tabriz city.

> For accessing low cost weavers we have to set up factories in weavers' places where they also prefer to work close to their home " (TP,1).

> By isolated rug factories we can chase our aim and have a competitive atmosphere….the final products from this way will provide more revenue" (TP,3).

Despite weavers not being in locked-in relationships with a specific producer, working in rug factories means they are not able to supply rugs to a number of producers and do not have the chance to use their own equipment to make rugs. They can make their own rugs based on both their own traditional techniques and experiences in designing rugs but if they can make such rugs and sell them to the markets, they cannot make a profitable business of their own because of the lack of branding power as well as acceptance in the markets as reliable, independent suppliers. Hence, these weavers need to work with producers. However, producers with a high degree of power need to ensure the quality of rugs is guaranteed and for very large orders they need a large production volume of good quality rugs. A **hierarchical** governance type is adopted in this production mode from a high level of explicit coordination in relationships with **permanent and temporary weavers** in rug factories.

Urban producers in Tabriz do not tend to work with village weavers and the cooperatives have relationships with these weavers to support them and buy their rugs if weavers cannot sell the products at fair prices to any potential buyers. For traditional village weavers who live in remote districts from Tabriz city, the sociocultural norms in each village determine the elements in the rugs, which have important social value in rug weaving in rural areas; these characteristics are related to their customs and social norms and cooperatives do not alter these traditions. All techniques and skills about rug production stem from weavers' traditions and they cannot (or do not) update their own techniques.

> In some cases, all things are stable and cannot be changed… buyers should buy rugs with these stable elements…. Rugs from village areas have a lot of such stable things which we cannot change (UR,1).

Cooperatives have aimed to support weavers and because of the high level of cultural influence on rug weaving, a high level of explicit coordination from cooperatives is not applied.

Because weavers are from remote districts and in some seasons weavers have difficulties selling the rugs and buying raw materials from Tabriz market, cooperatives support these weavers, facilitate raw materials and sell them to weavers, and just negotiate about the price of the rugs. This linkage is matched with the **market** governance. Despite the governance type being price-based and at arms-length, the support from cooperatives ensures that there is at least a buyer for the weavers' products and the buyer pays a reasonable price for the rugs.

The second group is trained village weavers who live in rural areas close to Tabriz city and intend to increase their capability. The proximity of these weavers and the union of cooperatives (which is located in Tabriz) means these village weavers have more motivation to increase their income and increase interactions with cooperatives. Through the union training courses, weavers can meet and increases the required level of specification of production requirements and techniques. The proximity to cooperatives and urban areas means that these weavers are keen to be more professional in rug weaving so as to increase their income. Thus, cooperatives are able to coordinate the rug production with verbal and face-to-face interactions.

> In the union history, close rural areas have more influence from the union's programs….we try to develop our scope of activities to encourage more village weavers to make different high quality rugs (UR,2).

Cooperatives do not internalise these weavers or employ them to exclusively make rugs. Rather, cooperatives' efforts to increase weavers' capability are basically a motivational type of interaction. Rather, a sort of trust emerges in their relationships and a **relational** linkage is dominant.

6-3-2 The role of embeddedness to explain why a specific production mode is dominant in the Tabriz rug GVC:

The gender of the weavers is one of the main factors affecting the production modes in Tabriz but because the majority of weavers are men, the role of this element in relationships between actors is different than in Isfahan.

In Tabriz, producers are not constrained culturally from having face-to-face interactions with weavers because they are men; therefore, they are able to control rug production directly with frequent inspections and transfer the required level of specification of production to the supply-base of the chain mostly with verbal interactions. Thus, the requirement of making written instructions and the cost of production are reduced.

> We can work [have interactions] with men weavers daily without any problem compared to the other places in Iran… they are expert in their job and can understand our word without trouble (TP,2).

In addition, male weavers have two main expectations from this occupation, and if they are not provided by rug weaving, they leave the industry. First, rug weaving is their primary source of income and sufficient income from this job is crucial, which causes them to either stay or leave the industry.

> [male] weavers need more supports about their wages, living allowance, daily life requirements, and having real job…. They are making good rugs and achieve good level of income (TP,1).

Second, male weavers need to achieve a social position from rug weaving and attain social differentiation compared to other possible occupations, such as working in construction or agricultural jobs.

> Rug weaving is an artistic job which is known in Tabriz culture as high class and a prestigious occupation (TP,1).

> Weavers are not workers… their social level, amount of income, and expectation from this occupation are quite different from simple workers… they are the engine of the rug industry (TP,2).

Although the gender of weavers does not cause cultural limitations about direct interactions, their expectations are challenging for producers. Face-to-face interactions are possible for producers in weavers' homes. As such, producers can decrease the cost of production by eliminating extra tasks such as making *complete* written instructions. In addition, the high level of control of rug making enhances the quality and price of the rugs. Thus, working with home-based weavers increases the income from rug production. Capable weavers who expect to have an artistic job work with producers in this production mode. As such, producers apply a low level of control in relationships with these capable, home-based weavers, and consequently **low supervision, home-based weaving** has emerged in Tabriz.

All weavers in the Tabriz urban area are not able to work at home. Temporary weavers can have a loom in their own home but producers do not work with these weavers in the home-based mode because these weavers are under their tradition and temporary status in this job causes them to adhere to their traditions' techniques instead of the producers' directions. Also, because the culture of some weavers' families does not match with working at home, these weavers prefer to work away from their home.

> Obviously, we cannot work with all weavers because every rug which is made in an urban area has not the characteristics of urban rugs….. A number of good weavers can make good rugs but some of them need to be managed to make acceptable rugs (TP,1).

However, the number of these weavers is much lower than the home-based weavers and **low supervision, home-based weaving** is the dominant production mode in Tabriz. In addition, embeddedness explains why the other production modes have emerged apart from the dominant mode.

As a result, producers have established rug factories to work with these groups of weavers. A home-based job does not provide a good social position for permanent weavers in rug factories, and so they need to work outside the home in a formal job . If this social expectation is not provided in the rug industry, they might decide to shift to other occupations or immigrate to another region.

> Making rugs in factories is a way to keep weavers inside the region….. This way of production also provides all expectation for weavers, including income, self-esteem, and social value…. (TP,4).

In addition, all producers in Tabriz have rug factories to show their power in the network between actors in the rug industry. Having rug factories means that producers can exert complete control over some specific projects, which helps them to develop more powerful brands:

> Rug factories are important in making business relationships with famous buyers…. For rug exports we need to have strong interactions with our colleagues [other producers] and access to strong buyers in international markets… (TP,1).

However, rug factories are needed for producers to increase the volume of products and this important production mode is shaped in the Tabriz urban area.

The other production modes in the Tabriz region need frequent interactions and direct control, in which working proximately in urban areas under the same socio-cultural understanding allows producers to maintain control over rug production. Thus, producers in Tabriz city are reluctant to work with **village weavers** who are in remote districts. Compared to the weavers in urban areas, village weavers have low capabilities and their remoteness from urban producers means that the only possible relationship between them is when village weavers move to the urban areas as temporary weavers (or become permanent weavers after enhancing their experiences) in factories. Village weavers, therefore, cannot work with urban producers because of their comparatively low capability, remoteness, and significant cultural differences to urban areas.

> It is important that weavers can avoid their traditional way of weaving and listen to us… living and working in urban areas gives them such characteristics….. Village weavers cannot work and adapt in such a way… (TP,2).

As such, traditional culture constrains village weavers from exploiting opportunities in Tabriz city. In this way, cooperatives are established to support the rug industry in rural areas. If weavers have a main (or seasonal) job, rug production is the secondary source of income and they just rely on the traditional techniques and knowledge in rug production. The second group of village weavers needs rug production as their primary job and source of income. This gives them a social position by making professional rugs. They increase their skills by interactions with cooperatives, for instance, by attending training courses provided by the union of cooperatives in Tabriz. Therefore, two groups of village weavers have emerged with different production modes: **traditional and trained village weavers**.

6-4 Overall findings and conclusion

In this final section, the overall findings and conclusions about the governance mechanisms, including different GVC governance types and embeddedness issues are presented.

6-4-1 Conclusion about the GVC governance framework

Three types of governance are applied in urban areas and two types of governance in village areas. Table 9 summarises the analysis of governance types in the Tabriz region. Table 9 summarises urban and village rug weaving in different series of rows. In the first column, the production modes are listed, separated into the two main regions in which each mode occurs: urban, and rural village-based production. The three elements of the GVC framework involving weaver capability, level of codification and the complexity of the transactions between producers and weavers are presented. The capability of weavers in urban areas is decreased from home-based weavers to temporary rug weavers in factories. Also, weavers in village areas have a quite different capability. All transactions are predicted as complex and due to different requirements in each production mode, the codification does not have a specific pattern in both sub-regions. Working with all weavers except traditional village weavers needs a high level of explicit coordination in the governance of the Tabriz rug GVC. Finally, this table shows that the theory of GVC governance by Gereffi et al. (2005) works as expected for the three production modes and that the two modes of the observed and predicted governance types are not matched. This means that regional elements are important in the coordination of the Persian rug GVC in Tabriz and embeddedness explains some major debates on coordination.

Table 9- Summary of governance mechanisms in the Tabriz region

Production mode	Capability of weavers	Complexity of transaction	Codification	Explicit coordination	Gereffi et al. (2005) predicted governance type	Observed governance type	Alignment between identified and observed governance
Urban rug weavers Home-based weavers	Highest	High	Low	High	Relational	Relational	✓
Factory permanent weavers		High	High	High	Modular	Hierarchical	×
Factory temporary weavers	Lowest	High	Low	High	Hierarchical	Hierarchical	✓
Village rug weaving. Village traditional weavers	Lowest	High	High	Low	Market	Market	✓
Village trained weavers	Highest	High	High	High	Modular	Relational	×

6-4-2 Conclusions about the embeddedness issue in the coordination of the chain

Two main issues about the coordination mechanisms are highlighted by the embeddedness of the Tabriz region that involve a mismatch between the two governance types and the reasons for the dominant production mode.

For two production modes, governance types are not matched between the observed and predicted. In working with permanent weavers in rug factories, the observed governance type is hierarchical but Gereffi et al.'s (2005) framework predicts a modular linkage. There are two main reasons related to embeddedness that modular governance types have not emerged in this particular region; the first is the network embeddedness. Producers have strong network ties while weavers have no such linkages to the important actors in the rug industry. To be able to work in a modular linkage, weavers need to have a reputation for their knowledge, ability, and the quality of their products in terms of getting orders and making accurate rugs. Producers in Tabriz do not believe that such characteristics have appeared for all weavers in the Tabriz region and they still need to exert strong, supervisory control over rug production. Thus, producers in urban areas rely on their own knowledge and brands to achieve domestic and global value from the Persian rug GVC. It means that weavers in rug factories do not have sufficient power to work in a modular linkage; rather, in rug factories they have to work in managerial and internalised linkages.

In addition, societal embeddedness causes weavers to have different requirements from working in this industry. Permanent weavers need a formal and regular job; working in rug factories provides a good social position in Tabriz culture. In this culture, some male weavers prefer to have a job outside their home so as to be known as an employed

person, which provides adequate social esteem. This group of weavers accepts internalised work in rug factories. The above embeddedness issues highlight the reasons that the hierarchical governance type has emerged in working with permanent weavers in rug factories instead of the modular linkage.

The second mismatched governance type is related to the trained village weavers and their relationships with the cooperatives. The observed governance type is relational but the predicted governance type is hierarchical. Societal embeddedness in village territories in the Tabriz region shows that the relationships between the cooperatives and weavers are based on the social activities of these village weavers. Village weavers are actively engaged in establishing cooperatives to take advantage of the agglomeration of such an institution. The social interactions among weavers in each village determine the behaviour of each cooperative.

In other words, village weavers have accepted working with cooperatives because they manage this institution, which helps them to achieve greater value from the markets. As a result, village weavers would not work with cooperatives if they were managed in a hierarchical or captive linkage. Rather, by linking to the union of cooperatives this group of weavers is keen to increase their knowledge and work in higher quality markets, such as making high quality rugs for the global markets and achieving greater value. Hence, they tend to make such a network interaction with cooperatives and the union of cooperatives.

The second important issue about the role of embeddedness in coordination mechanisms in the Persian rug GVC is to explain the dominant production mode in each region. Currently, in the Tabriz rug GVC low supervision, home-based weaving is the dominant production mode. Societal embeddedness has a significant role in this dominant production mode. The gender of the weavers is one main factor in the

emergence of this dominant mode. On the one hand, male weavers have few barriers for producers because, with the low cost of verbal knowledge exchange and access to the place of production, producers can exert strong control over rug production. Because of the high capability of weavers, managerial control is not necessary and person-to-person interactions are achievable in the weavers' homes. Thus, further codification such as providing complete written instruction is not necessary and the cost of production is decreased. On the other hand, weavers tend to have a job that provides some benefits, including an artistic occupation with a high social position, a stable and formal job, and an adequate income. These factors provide a degree of power in the industry. These issues highlight that low supervision, home-based weaving is the dominant production mode in the Tabriz region.

Chapter 7

Qom Region

Introduction

In this chapter the results from the content analysis of the interviews from the third region, Qom province, are discussed. This region is important in the Persian rug GVC because in recent decades the number of high quality rugs from this region has increased, and also, producers in this region have not been bound by this small province but have expanded their activities throughout the country. In the first section of this chapter, a review of Qom region and some factors in the rug industry in this region are provided. In the second section, the governance mechanisms in the Qom rug GVC are analysed and two different production modes are evaluated. In the third section, the role of embeddedness in the coordination of the chain is analysed. The final

section provides an overall discussion about governance types and embeddedness issues.

7-1 A review of the Qom region

Qom city is the capital of Qom province and is known as a holy city in Iran. However, in recent years, rugs from this city have been famous in domestic and global markets. In particular, silk rugs from this region are well known in global markets, in which the finest knots in Persian rugs can be found. According to one interview from traders in Hamburg, "The best rugs that are made in the last 15 years in Qom are equal to all best rugs in the history of rug production in Iran" (HT, 1). In this section, the descriptive review of this region provides a basis for understanding the regional impact on rug production in this city.

7-1-1 Geography of the region

Qom province is located in the northern centre of Iran between Tehran and Isfahan provinces, 150 km from the capital city of Tehran, and covers 11240 km^2 (the equivalent of 0.89% of Iran's land area; see Figure 57). This region was a part of Tehran province which was formed in 1995. The population of Qom province is approximately 2 million people, with more than 1,150,000 people living in Qom city. The province has six cities, five districts, and ten villages (Statistical center of Iran, 2014), with a desert climate that results in inadequate rainfall and dry lands. In such climate, winters are very cold (min -16°C) and summers are very hot (max 42°C) (Statistical center of Iran, 2014).

This climate affects the style of living in this region whereby residents live in their basements during winter and on their roof terraces in summer. Also, because of the very hot summer days, the working hours in Qom are different from all other cities in Iran. Between 1 pm and 4 pm almost all private businesses are temporarily closed and

re-open from 4 pm to 7 pm. This system of lifestyle and working hours have provided a unique situation for people to work on art works and, more recently, to design high quality rugs (QP,4).

Figure 57-The geographical location of Qom region in Iran.

7-1-2 Cultural aspects of Qom

Rug production has a short history in Qom. Approximately 100 years ago merchandisers from Kashan city in Isfahan province migrated to this holy city (possibly for religious rather than economic reasons (QP,1)). However, this industry has only become significant in the last 20 years, during which time the third generation of pioneer producers in rug production in Qom changed the raw materials used from wool to silk to cope with elegant designs. The origin of the very unique design and colouring in Qom is still in debate and some experts believe that the emergence of Qom rugs in the last 15-20 years is related to the cultural aspects of the actors in Qom in

which the uniqueness of their designs and colours emerged by switching from raw materials to silk (QP,2).

Another important factor that has reinforced the emergence of high quality rug production in Qom is the role of immigrant weavers. The majority of weavers in Qom are recent immigrants from other provinces (mostly from the west and northwest provinces (QP,2)). Highly capable weavers from other provinces with a good source of experience are hired by producers to make high quality rugs.

Qom is a religious city in Iran in which relationships between men and women are confined under Qom's religio-cultural norms. As a result, producers (men) cannot make easy, direct relationships and frequent inspections with weavers (of which the majority are women). They usually work with a middleman who is a relative of the weavers to make linkages between actors. In some cases they just have a linking role while in other cases they are important in coordination mechanisms. Through this system of interaction, producers understand and have experiences that it is possible to make relationships with weavers in any place of the country with employing middlemen. As a result, a cultural barrier has opened an opportunity for producers to expand their activities in all other parts of Iran.

7-1-3 Economic aspects in Qom

The main economic factor in Qom is the religious tourism source of income for many businesses. Pilgrims from other provinces (and other countries, such as Iraq, Pakistan and Afghanistan) have enhanced the tourism sector of the economy in Qom. Traditionally, hospitality and food businesses have been the main sections but in recent years handicraft and retailing have thrived in Qom. However, because Qom rugs are very expensive and pilgrims are not able to buy this product as souvenirs, the rug industry is not directly related to the tourist aspect of the Qom economy. This province

contributes 1% to the national GDP (Statistical center of Iran, 2014). According to INCC (2013) data, 15% of Persian handmade rugs are from Qom province. Producers are the only main actors in this region, and the union and the other institutions follow the strategies of producers in the markets.

This section has provided an overview of the rug industry in Qom province. The following sections provide an insight about the rug production and coordination mechanisms in Qom region.

7-2 Governance mechanisms in the Qom rug GVC

In this section, the coordination mechanisms in the rug GVC in Qom region are analysed from the interview data. This section analyses the production modes by evaluating the observed and predicted governance mechanisms in the coordination of rug production in the Qom region.

Approximately 60% of Qom rugs are made within the Qom region (mostly in Qom city) and the majority of these products are made using immigrant weavers.

> Immigrant weavers from all parts of Iran are the main group of weavers in Qom…. They are experienced weavers with a good level of techniques…and also can follow our direction…"(QP,1).

Because rug production and particularly high quality silk rugs are a new industry in Qom, weavers who are originally from Qom city do not have the capability to work in this industry. Therefore, producers in Qom use immigrant weavers from other regions. In a normal sense, these weavers bring their traditional and personal techniques to the rug production; however, the way that producers coordinate the rug production limits the weavers' impact on the rugs. This coordination is explained in the next sections.

The second production mode in Qom emerged from opportunities arising from the excess capacity in other regions in which producers in Qom exploited the opportunity to make high quality Qom rugs in other provinces. These rugs are made with the same quality due to producers providing a unique coordination system.

> Qom rugs are made throughout the country and our producers are managing rug production almost in all regions….our unique way to manage the rug weaving is the main factor that provides such pervasive activities (QP,4).

Provinces in the Persian rug GVC are divided into two rug industry types. The first type involves regions in which rug production is an active industry such as famous and branded regions (i.e. Kashan region in Isfahan province). The second type consists of the regions in which, in recent years, rug production has been declining because of technical and environmental reasons, such as downgraded (i.e. Kerman province) or non-famous (i.e. Semnan province) regions. Producers in Qom have different strategies and relationships for working with weavers in these two regional groups.

Producers can control the rug production within Qom city but in the other regions they hire agents to control the rug production in both regional groups. As such, the production mode is completely related to the place of production and two main production modes are rug production within Qom that is directly coordinated by producers in Qom, and rug production in the other provinces that is indirectly coordinated by producers in Qom and can be divided to the regions with an active rug industry and those with a declining rug production.

Table 10 shows the structure of rug production in the Qom rug GVC. The data from this table is approximate because they are gathered from different reports by INCC. As shown in Table 10, the value creation and export rate of rug production in the regions

outside Qom province is considerable greater than rug production within the region. This proportion is also similar in value creation and rug exports.

Table 10- Important criteria in different production modes in Qom rug industry (Source: data from Iran National Carpet Centre, 2014).

	Within Qom	Outside Qom
Percentage of weavers	30%	70%
Value	40%	60%
Export rate	40%	60%

The following sub-sections provide the analysis of the coordination mechanism based on these different production modes. Each section has three parts: a review of the relationships in each production mode; the observed and predicted governance types from Gereffi et al.'s (2005) framework; and finally, an analysis of the role of embeddedness in shaping the production modes and governance types.

7-2-1 Rug production within Qom city

The governance mechanism and the production mode associated with rugs produced within the Qom region are explained in this section. Producers in Qom prefer to increase the rug production within Qom city where a high level of direct and regular control on rug production is viable for them. However, the number of weavers within the region who can make high quality rugs using all the directions from producers is not sufficient to make the volume of rugs needed to satisfy orders received by producers in Qom.

> We wish that Qom region was broader and the number of good weavers was more than the current [rate]…..if such a situation was accessible, we could develop the rug industry and increase the export rate almost two times [for all the Persian rug production] (QP, 2).

> I have to look for good weavers who have moved to Qom city because rug production in Qom is not historical and is not part of the Qom heritage (QP, 3).

Almost all weavers in the Qom rug GVC (within and outside the region) work from home and producers have not developed rug production in rug factories. As a result, these weavers work in a home-based production mode. Within the region, producers employ weavers, and working independently from them is not common or significant in rug production in the Qom region. The employment does not mean that weavers have to work in a factory. The lack of independence is characterised by weavers having to make rugs within a specific time for one producer and based on his directions.

> I prefer to work with weavers in Qom…but the number of good weavers has decreased in recent years…. I can control all details and processes of rug weaving when weavers are within the city (QP,2).

Also, weavers are not obliged to work with a single producer over time and can refer to another producer after one project is done. However, if producers can *professionally trust* a weaver, they both prefer to work with each other over time (QP, 1).

> Long-time mutual experiences help us to make rugs with lower cost and more quickly" (QP,1).

Weavers are free to obtain material from producers or from the market but for the best results, materials from the producer guarantee a higher income. All materials must be provided from the producers for specific and unique rugs,. In other words, buying raw

materials without the producers' direction is not significant in the home-based production mode within Qom.

> We have some specific fibre makers, dyers, loom makers, … and other specialists who provide all requirements for us…we ask weavers to link to these actors for our rug projects (QP,4).

For instance, producers usually work with specific dyers to make unique colours in which some recent, innovative rug colours have provided a competitive advantage for the Qom rug industry. The aim of producers is to decrease the influence of all other actors in rug production, customise the requirements, and also gain complete control over the weaving stages. Figure 58 shows the influence of producers and weavers in the Qom rug industry.

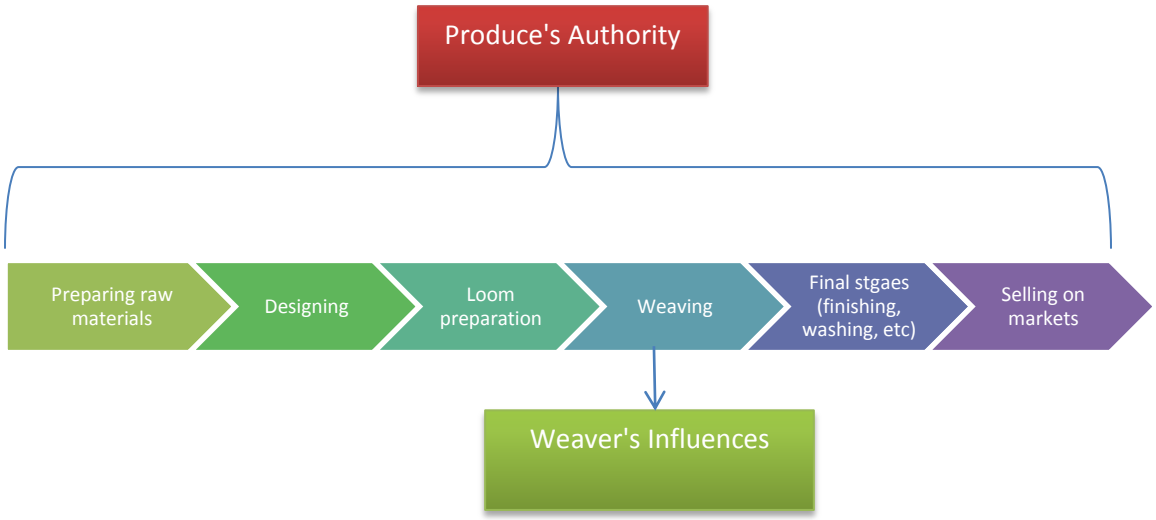


Figure 58- Influence by actors in rug production within the Qom city.

As shown in Figure 58, weavers within the Qom city do not have a specific influence on rug production and they receive directions from the producer about all aspects of the rug-weaving stage. In other words, their impact on the design, patterns, colours, and any other aspect of the Qom rugs is limited by producers. Throughout the weaving

stage, they just make knots by direct supervision from producers who determine all technical details on rugs. As such, weavers just make knots by direct supervision from producers. Technically, weavers have a degree of influence on rugs but because any fault or variation in the designs can cause an important decrease in the price of the final product, weavers are very cautious to avoid the influence of their own traditions or any possible variation from the design on the rugs.

The main aspect of the relationships between producers and weavers is that financial issues (the price of the rug) are determined by a wage council (including a number of producers, weavers, and experts) after weaving. If weavers make a rug that the wage council identifies as not being a high quality, the price is set at the minimum (which weavers prefer to avoid). As a result of this unique pricing system, weavers are very careful about the quality of the product and little direct supervision is, therefore, required by producers in Qom. The next section analyses governance mechanisms in this production mode.

7-2-1-1 Governance mechanisms in rug production within Qom city

In this section, the observed governance type and prediction of the governance type based on the GVC governance framework by Gereffi et al. (2005) are analysed.

7-2-1-1-1 Observed governance in rug production within Qom city

Less than half the weavers working in the Qom rug industry are located within Qom city (see Table 11), and all of them work in the home-based production mode. Although the majority of weavers are women in Qom city and it is possible that socio-cultural issues prevent regular and direct control by producers, because rug production in Qom is a professional job, weavers solve such problems and producers can access the looms during rug weaving. For instance, the male members of their families have interaction

with the producers during inspections. In addition, skilled weavers work with producers and, therefore, usually require a low level of supervision. However, producers in Qom who make unique and very fine silk rugs do tend to provide a high level of supervision.

> Maximum control is needed for making this level of quality of rugs…. Even professional weavers need our complete attention and control to make such rugs (QP, 2).

In other words, the capability of weavers does not provide them with a source of power and producers have complete control to determine the level of supervision and the rug production. This issue is related to the high level of quality of the rugs in which even expert weavers cannot make rugs exactly based on the provided design without a high level of supervision. Making such rugs requires a high level of knowledge that only producers posses.

> Although these weavers make rugs in their own place, we check them all the time to prevent any possible errors (QP,3).

This high level of supervision is because producers from Qom are known for their high quality silk rugs with few errors in design, colours, weaving, and finishing. To guarantee this level of quality, producers prevent weavers from working with other producers during the rug production. Producers prefer to have an employment linkage with these weavers to achieve complete control over their supplying linkages with other producers. In such relationships these skilled weavers are no longer external suppliers, and producers do not want to provide locked-in relationships in which weavers would not work. Hence, producers tend to make employment relationships and internalise weavers in their rug production where they provide all materials (except when they let

weavers buy materials from the market), pay the weavers wages, and exert managerial control over the rug production.

> from the first day we negotiate about periodical payment and determine the price of the rugs at the end and pay the rest of wage on the final day….they are employees for us and work in their own home with our direction (QP,1).

During production, the rugs belong to the producers, and in the case of discontinued work, the rugs are moved to the producers' workplace. Producers ensure the quality and branding of their products with a high level of explicit coordination, which is achieved by a high level of written and verbal interaction that they determine from mutual experiences.

> Some weavers do not need to be informed and be familiar with my techniques because we have sufficient interaction over time (QP,2).

Producers in Qom select skilled weavers who do not need to invest in increasing their capabilities because they have to be skilled enough to work in this industry in the Qom region. Also, because producers have a high degree of knowledge and power, their cost of switching weavers is low and they do not tend to adopt locked-in relationships with weavers. Thus, a **hierarchical** linkage is dominant in this production mode in the relationships between weavers and producers.

7-2-1-1-2 Predicted governance types in the rug production within Qom city

In this sub-section, the prediction of the governance type based on the three Cs is analysed.

Complexity of transactions: The products from this production mode are the highest quality rugs in the Persian rug GVC. Hence, the nature of the transactions between

weavers and producers is complex because a lot of information about a variety of aspects of rugs must be exchanged between these actors. This complex information about products, financial issues, time of completion, and the control quality of rugs during rug production increases the level of complexity of transactions.

Capability of weavers: In Qom, producers have to work with skilled weavers. They only select weavers who are able to follow their directions and make rugs with a few mistakes.

> the time for making a high quality rug does not let us to have a lot of errors in rugs and we do not have sufficient time for correction (as errors decrease the quality of products)…we must select high quality weavers and, in some cases, professional weavers (QP,3).

These weavers are skilled and expert and are from other regions who have moved to the Qom region because they are looking for a better level of income that the rug production in Qom can provide for the same time when working in the other regions. Thus, the level of capability of weavers is high in this production mode in Qom region.

Codification: Codification in the Qom rug GVC is different from the other regions. Because of the uniqueness and very high quality of the products, the current method of making written instructions as the basis for the codification of knowledge is not sufficient in the rug industry in Qom. A variety of details about the design, colours, size, way of knotting, any possible correction, and finishing jobs need to be transferred to weavers. Attempting to codify this complex information to decrease the level of verbal interaction and supervisory tasks would likely increase the cost of production.

> designs [parts of designs on timbers] are part of our influence on weavers….we have to motivate weavers to increase the quality of products… regular control

> shows that their rug weaving is important for us… we try to have an adequate level of control… (QP,3).

In addition, through the current method of codification, a lot of information cannot be exchanged with weavers for such high quality silky rugs. The size of the written instructions in each round of rug making is usually about three *Gereh.* This criterion is the measure for determining the quality of a rug. A Gereh counts the number of knots in 7 cm length in a row of a rug. For instance, Qom rugs have more than 150 Gereh in that in a 7 cm row represents 150 knots. In addition, producers provide full details on the current method of rug production but such information is not adequate for weavers without further direction. Thus, this level of codification alone is not sufficient for making high quality Qom rugs and verbal interactions are crucial to exchange knowledge.

According to the Gereffi et al.'s (2005) model, a ***relational*** linkage would be expected in this production mode because the linkages between producers and weavers are characterised by high complexity, low codification, and high weaver capability.

Conclusion of governance types: A comparison of the observed (hierarchical) and predicted (relational) governance types shows that Gereffi et al.'s (2005) model does not work as expected in this production mode.

Producers in Qom have three different ways to make their unique designs that involves working with weavers within the Qom city, and in the other regions with two different groups. Although relatively fewer rugs are made within Qom city than in the other regions, the value of each city-made rug is more than that made in the other regions (QP,1,2). This fact shows that rug production within Qom city is more important than the other production modes and producers pay specific attention to working with weavers in their own region.

As a result, producers are able to adopt more direct control and a high level of supervision within Qom city; therefore, they pay specific attention to rug production in this production mode. In other words, this production mode is vital for producers in Qom in their branding and activities in high-priced markets.

In this way, producers eliminate locked-in relationships from their interactions with weavers because it is difficult to work in such production mode with skilled weavers. Therefore, producers recruit weavers to have a high level of control without applying the captive relationship. In addition, these weavers and producers in Qom do not have the same level of knowledge and power. As such, weavers do not have sufficient power to work in rug markets independently and also producers do not tend to make markets or modular relationships with weavers in Qom. In other words, to make such high quality of rugs in Qom, producers cannot rely on weavers' technical and tacit knowledge.

Furthermore, the number of producers in Qom is limited and they work in an agglomeration. This decreases the power of switching costs for weavers and producers neglect any relational linkage. Hence, the above explanations suggest that recruiting and a hierarchical linkage are necessary for producers to work with weavers within Qom city. A discussion of embeddedness can provide a further explanation for the inconsistency between the observed and predicated governance types. In the third section of this chapter, this explanation is discussed.

7-2-2 Rug production outside Qom region

The volume of products that can be made from this production mode within Qom city is not sufficient for producers to be successful in domestic and global markets. Producers need to increase their production and Qom city does not provide further

resources to do so, particularly weavers. In recent years, producers have expanded their activities to regions both near and far.

> All of our colleagues expand and manage their rug production throughout the country (QP,6).

> We can export the specific system of production to all different parts of Iran because we believe that rug production needs some reform and moving to a better structure…. (QP,10).

The type of Qom rug with specific characteristics, such as raw materials (silk fibres), unique and modern colouring (new colours in the Persian rug industry), and also the type of knotting (very fine and velvety texture) means that making this type of rug needs specific skills and knowledge about rug weaving. As a result, by determining such requirements and providing a level of standardisation in the rug production process, they can expand Qom rug-making in any location within Iran. Because of such semi-standard procedures, the impact of regional factors on rug production can be controlled by the producers.

> We want to make rugs in different places but also we want to make Qom rugs….we just work with weavers who accept making Qom rugs, not their traditional and regional rugs" (QP,11).

More than half the weavers in the Qom rug GVC work in different regions (see Table 10) and producers in Qom indirectly supervise them. They recruit agents to exchange the roles, directions, and instructions with these weavers in different regions. Producers provide the designs (on graph paper) and fibres to the agents and they define in detail all aspects of rug production with the weavers.

Agents are expert weavers or local producers who have a long history of interactions with one producer in Qom. They have learnt all techniques and knowledge during their

work with the producer. The relationship between the agents and producers is similar to mentor-student relationships in which the agents are the loyal representative in different regions and do the required tasks on behalf of producers in different regions. The agents know how to supervise the local weavers in rug production outside the region in the ways needed by the producers in Qom. The number of such expert actors is relatively limited and each producer in Qom has a few such agents throughout the country to supervise the Qom rug production.

The agents are required by producers to influence all stages of rug production and they are paid fixed wages.

> Our representatives in each province have tried to transfer all needed details to weavers…. I can accept a degree of mistakes but with [working with] the agents we determine what should be fixed [in rugs] as well as what must be transferred to the weavers to make high quality rugs (QP,10).

Provinces in the Persian rug GVC are divided into two rug industry types. The first type involves the regions in which rug production is an active industry, such as famous and branded regions (i.e. Kashan region in Isfahan province). The second type involves the regions where rug production has been declining in recent years because of some technical and environmental issues, such as downgraded (i.e. Kerman province) or non-famous regions (i.e. Semnan province). Producers in Qom have different strategies and relationships in working with weavers in these two regional groups.

In the first group of regions with an active rug industry, weavers have other options in working in this industry and if working for Qom producers is difficult, they might prefer to work with producers within their own regions. As such, they are allowed to have more influence on rug production. Qom producers do not have a serious problem with this level of influence, because the weavers' technique and knowledge about rug-making are updated in such regions. Figure 59 shows the level of influence by each

actor in the value-added stage of rug production in the first group of weavers in this production mode.

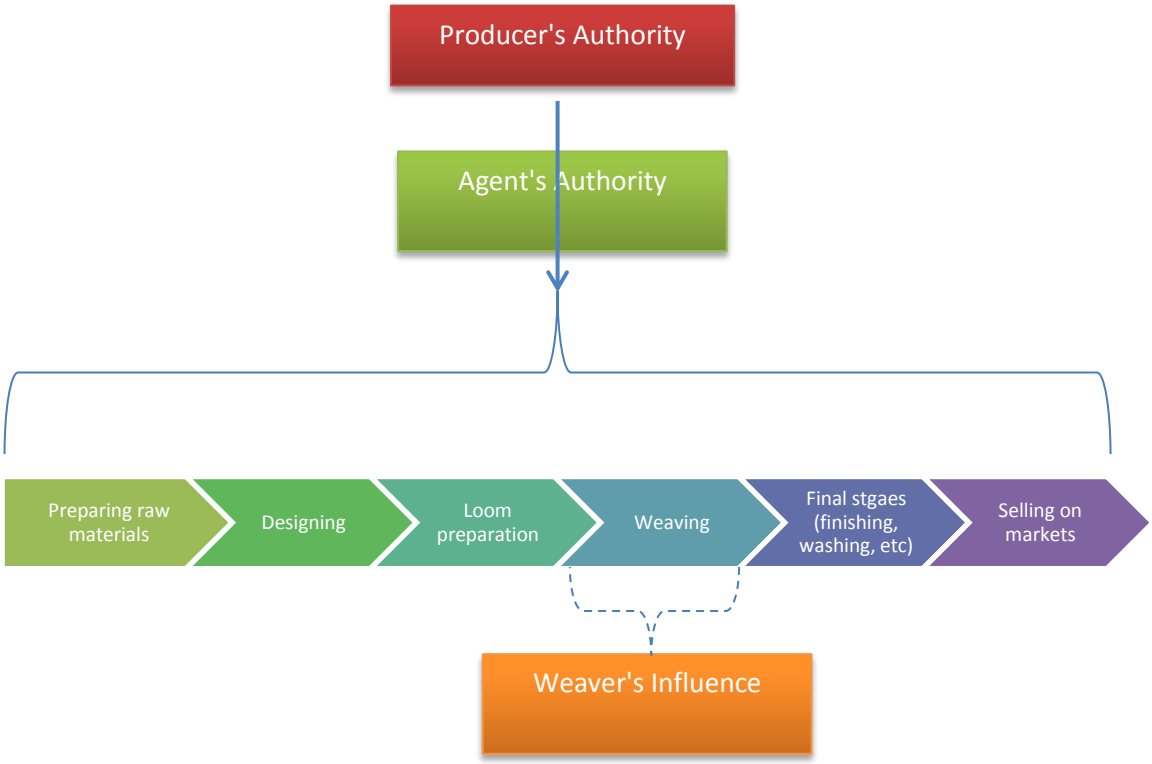


Figure 59- Influence of actors in the provinces with an active rug industry.

As Figure 59 shows, producers delegate their authority to the agents to transfer required knowledge to weavers and to manage different stages of rug production, including the weaving stage. Weavers in the regions with an active rug industry have a greater impact on rug weaving than those within Qom city.

In the second group of provinces that has a declining rug industry, weavers adhere to their own traditions, and their knowledge of rug production is out-dated. They do not have an option to work with branded producers to produce sufficient income, so they accept working with producers in Qom. In this case, producers prevent weavers from having a significant influence on the rugs and the level of managerial control is high in

working with these weavers in this production mode. Figure 60 shows the level of influence of each actor in the value-added stage of rug production in the second group of weavers in this production mode.

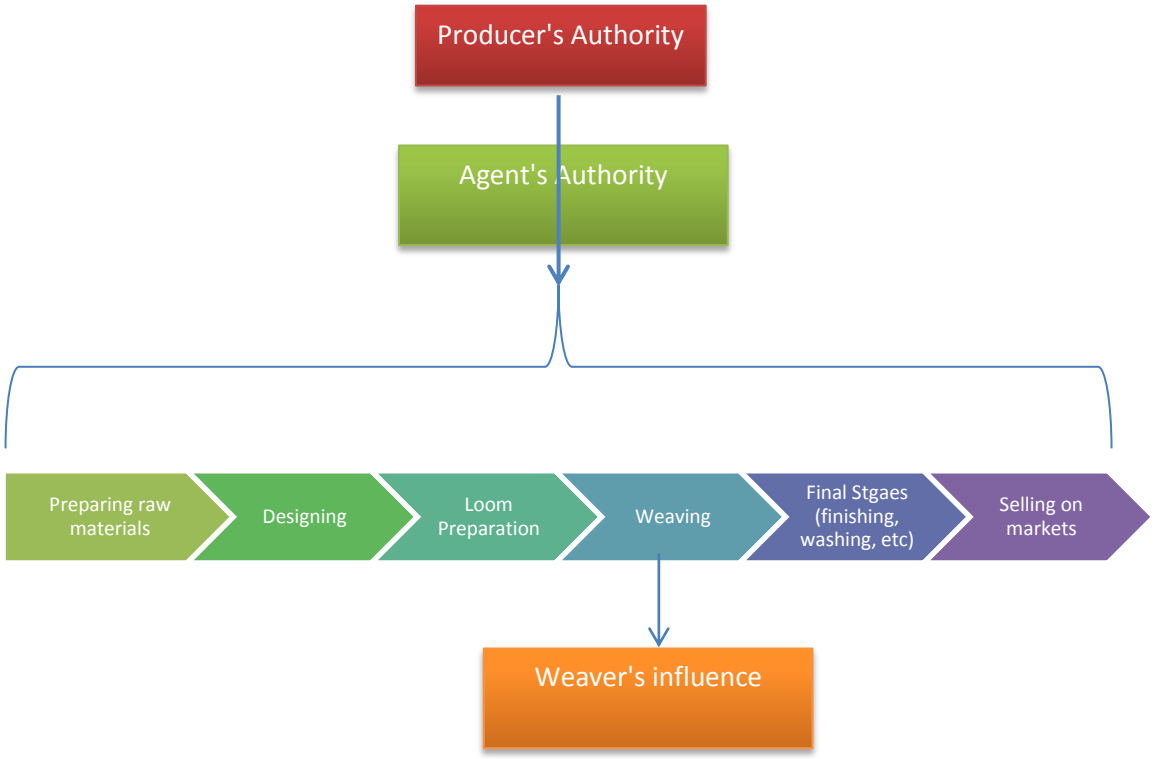


Figure 60- Influence of actors in the provinces with a declining rug industry.

As Figure 60 shows, producers in Qom control all stages of the rug production in the regions with a declining rug industry by employing agents who control the rug-making process on their behalf, and the weavers just make rugs based on the directions from the Qom producers. Rugs from this production mode are Qom rugs with the same quality of Qom city's products. By this production mode, producers in Qom ensure that the quantity of products for domestic and global markets is met.

7-2-2-1 Governance mechanisms in rug production outside Qom region

The observed and predicted governance types are analysed in this section based on the interview data from the Qom region. Comparison of these governance types and the role of embeddedness in coordination are also discussed.

7-2-2-1-1 Observed governance in rug production outside Qom

In relationships with weavers from both types of regions (regions with an active rug industry and regions with a declining rug industry), because of the remoteness of these regions to producers in Qom city, agents are employed to exert managerial control on the rug production in the other provinces.

I working with weavers in the regions with an active rug industry, weavers have the option to work with local producers and other ways of making money based on the previous linkages. As such, producers do not have complete control of the rug production and and so they determine all aspects of rug making for these weavers.

> Good weavers in the other regions are not similar….some weavers need motivation and some weavers are ready even to move to Qom city (QP,6).

> We try to find weavers who have high skills in making rugs…in some cities skilled weavers are working with [local] producers and have a good level of technique to make rugs…..it's difficult to exchange new techniques if they are active in rug production (QP,10).

Thus, producers consider this degree of weavers' power and accept their ability to make high quality rugs. However, producers in Qom need to make unique and super quality rugs that are not possible with a low level of supervision. Hence, through agents producers provide all details and written and verbal instruction to make high quality rugs. This high level of explicit coordination is based on mutual understanding and

trust in the ability of weavers to follow instructions. Weavers are not in locked-in relationships with producers in Qom because the potential buyers within their own region offer another option for weavers to sell their products at a fair price. The observed governance type in the first group of provinces (active rug industry) is matched with **relational** governance.

For the second group of weavers, producers in Qom look for skilled weavers in the declining regions. Weavers in this region make rugs based on their ability and techniques that are rooted in their traditions and previous experiences. They do not have the other option of working with famous, local producers. Thus, any linkage to producers in Qom is positive for these weavers.

> The selection from different weavers in some regions such as Semnan is easy because weavers in this province do not work with well-known producers ….branded producers in these provinces have died, retired, or moved to other regions…. They accept to work with us even with a low level of wages…however, we pay a fair level of wages based on their efforts (QP,10).

Also, their current products are bought by wholesalers and brokers at a very low price and so they are keen to work with producers in Qom.

> Working at the same time with Qom rugs will will provide triple time more income for these weavers [in declining regions] (QP,6).

Because weavers' power to manoeuvre in the rug GVC is limited, they have to leave the industry (or sell their low quality products to other buyers for low prices) if they cannot form relationships with producers in Qom. Because the majority of these weavers are women, their migration to other regions to work in the rug industry is not possible. In this case, producers in Qom make locked-in relationships with these weavers to have exclusive weavers in other regions in the long-term and also to invest in a group of

weavers to make high quality rugs. Therefore, the governance type matches the **captive** linkage.

7-2-2-1-2 Predicted governance types in rug production outside Qom

This section provides an analysis of the level of the three Cs to predict the governance type based on Gereffi et al.'s (2005) approach.

Complexity of transaction: In Qom, producers make high quality and unique silk rugs with complex designs in relationships with both groups of weavers outside of the region, and complex transactions about making such rugs is necessary in this production mode.

The exchange of information from producers to the agents and then from the agents to weavers makes a complex procedure of knowledge transferring. Many complex details must be exchanged for the producers to ensure the quality of their products. They need to figure out the low cost relationship with their agent (and sometimes with weavers) to decrease the cost of coordination. Usually, agents come to Qom and have an interaction with the producers in person to adapt the knowledge for different projects as well as get new orders and required materials (including fibres and graph paper). Thus, all transactions are very complex in this production mode and when working with both groups of weavers.

Capability of weavers: In Qom, producers work with highly capable weavers in both groups of regions outside the Qom city according to the specific requirements of production.

> I just select skilled and expert weavers and do not want low quality rugs at the end of rug production" (QP,10).

> Usually I work on a small size rug with a new weaver and if the work is acceptable, the main and unique rugs are allocated to the weaver (QP, 4).

Weavers in other regions are selected because domestic agents know which weavers are suitable for Qom rug production based on weavers' previous productions.

> Our representatives are familiar with their place of working….they know which weavers are suitable to work in Qom rug production (QP,4).

As a result, agents find highly capable weavers to decrease any possible errors on rugs because errors increase the cost of production. However, the number of capable weavers varies in different regions, and in small cities and remote districts agents need to work with weavers who do have not any previous record with the agents. Although the number of weavers in active rug regions is higher than those in declining regions, both groups have sufficient capability to be known as skilled and expert weavers. All in all, highly capable weavers are selected for the main Qom rug production.

Codification: In Qom, producers need to exchange important information with the supply-base but because of the codification tool, the agents need to have verbal interactions to make the unique Qom silk rugs, as making written instructions is insufficient..

> paper graphs are not the only tools that we need to work with weavers….the face-to-face interactions between our agents and weavers are necessary to make high quality Qom rugs (QP,10).

The written instructions are the same as used within the Qom region. However, the agents in all other regions have to help weavers to understand the instructions on behalf of producers. In other words, the agents must be experts (highly capable weavers or domestic producers) to manage rug production as the representative of producers in coordinating all needed stages. In addition, the agents are responsible for providing any

verbal instruction to weavers and for any existing fault or variation. However, after working on some projects such issues rarely appear on rugs.

> The relationships between me and my agents in each province are about years of mutual working on rugs…some of them are producers in their own regions and some of them are expert weavers (QP,4).

> I employ agents to facilitate rug production and they are responsible for the quality and time of rug making (QP,6).

Thus, there is a degree of codification with written instructions but it is insufficient for transactions to occur without substantial interaction and the level of codification is low in relationships with these weavers.

In terms of the prediction of the governance types based on Gereffi et al.'s (2005) approach, a high level of transaction complexity, a low level of codification, and a high level of weavers' capability in both region types are characterised a *relational* governance linkage.

Conclusions for governance types: Comparing the observed and predicted governance types shows that the Gereffi et al.'s (2005) model works with weavers in the active rug industry (relational governance type), but captive governance is predominant when working with weavers in the declining rug industry.

Because the number of highly capable weavers is limited within Qom city, producers need to work with skilled weavers in other regions. However, supervising weavers in the active and declining regions is different due to weavers having different options in their own regions. Producers in Qom tend to adopt the highest level of supervision to ensure the quality of their unique rugs, and to maintain their branding image and success in high priced markets. They are able to make locked-in working relationships with weavers in the regions with a declining rug industry because these weavers do not

have another option to achieve such a high level of income (if they were to work independently in their own regions or move to other regions and work as immigrant weavers). Producers tend to not have relationships with those weavers who have some degree of influence on the rug-making process. In addition, because of the remoteness of these weavers, employing them in their own business and internalising them as exclusive suppliers is not a cost-effective solution. Hence, the captive linkage is the only governance type when working with these weavers.

Producers know that weavers who make rugs in regions with an active rug industry, these weavers have knowledge that flows among the actors and weavers about global demands, and have sufficient experience to make rugs for high priced markets. Also, weavers in these regions have a degree of power from their ability to work with local producers when they are faced with difficulties in working with producers in Qom. Hence, producers in Qom do not allow weavers to make Qom rugs independently (with less supervision) or in market and modular relationships. In addition, they know that providing locked-in relationships do not work due to the characteristics of the weavers. As such, producers in Qom transfer needed information to weavers using a relational governance type with mostly face-to-face interactions via the employment of agents.

The embeddedness issue provides further explanation about these coordination mechanisms that are proposed in the third section of this chapter.

7-3 The role of embeddedness in rug production in Qom province

This section explains the role of embeddedness in governance mechanisms in the Qom rug GVC.

7-3-1 The role of embeddedness in the governance of different production modes in the Qom rug GVC

The governance type in rug production within Qom: Because of the extensive growth in the Qom rug GVC, weavers from other regions have moved to Qom city to explore the opportunities in the rug industry and seek a sufficient and permanent source of income.

> Almost all weavers are not from Qom city…they are from the other regions including immigrant people from the North West of Iran"(QP,4).

They bring techniques and elements from their background and traditions to work in this industry. Producers with a high degree of power and supervision have tried to decrease the influence of weavers' traditions in order to make high quality rugs. Although the majority of these weavers are women and because Qom city is a religious territory, the cultural issues do not prevent the producers from having complete control. Rather, producers are able to achieve complete control in rug production by internalising and recruiting weavers to work with just one producer at a time but in the weavers' home.

Producers provide all the raw material and requirements and pay wages to weavers. Immigrant weavers know that they have a low level of power to manoeuvre in the Qom rug production. They accept that in a new environment they have to follow all the details of rug production to stay in the industry. To keep their job they need to decrease any conflict with producers and make rugs that do not show any signs of their own traditions. Because Qom city has been the centre of immigrant weavers, there is no shortage of weavers and so they have to adhere to their relationships with the current producers.

> Weavers accept all issues in working with us because they know that finding a new linkage is very difficult (QP,3).

Also, because weavers are immigrant suppliers to the Qom region, they are not able to achieve proper social and network positions to have equal network relationships with the other producers. As a result, they do not have a specific source of power to be able to compete against the power of the Qom producers. Hence, the governance type in this production mode is far from a modular and market linkage in which weavers can make rugs with a low level of direction by producers as well as a relational governance type in which weavers have the same level of knowledge and ability to work with producers. Producers have complete control of all stages of rug production with a high level of explicit coordination and this linkage is matched with hierarchical governance.

The governance type in rug production outside Qom region: Unlike the other regions in Iran, rug production in Qom does not have a long history. As a result, producers in Qom have become famous because they rely on new and innovative rugs.

> My grandfather was one of the first producers who moved from Kashan to Qom and established the first professional rug weaving place….. since around 100 years ago, rug production in Qom has developed but in less than 20 years we have shifted to make unique and innovative rugs (QP, 4).

In the same way, weavers who work within Qom city adapt their ways to follow producers' instructions because they do not have their own traditions of rug production. Hence, producers do not have significant problems when working with weavers and their traditions in rug production within Qom city. However, weavers in other regions extensively adhere to their regional culture in rug production.

In addition, weavers in the regions with an active rug industry have strong network relationships with producers in their own territories. If making a Qom rug is significantly more difficult than in the other regions and needs more time and effort, the weavers in these regions have the other option of working with producers in their own region. Such strong networks in which weavers are flexible to work with different producers provide them with a source of power. Weavers in the active rug industry are not obliged to ignore their traditions because they can choose not to work with Qom producers if these producers do not allow them autonomy to pursue their own traditions. Their relationships with the local producers provide a specific source of power to prevent any pressure from producers in Qom.

As a result, the agents have to provide the required information about designs and instructions to these weavers and apply frequent and direct person-to-person interactions to exchange all required knowledge.

> I know that some weavers need a type of esteem in relationships and they are artists in the rug industry….Our relationships are different with these weavers (QP,6).

These weavers have a degree of power from the network relationships within the rug industry in their own regions and they have sufficient knowledge and experience from their regional cultural and traditional context. As such, the relationship in this production mode for these weavers is based on **relational** governance.

In contrast, working with weavers in the regions where the rug industry has been downgraded is not predicted correctly based on the three Cs. Because the number of capable weavers is limited within Qom city, producers work with skilled weavers in the other regions. Such relationships constrain producers because of the remoteness of the actors as well as the different socio-cultural norms in the other regions.

> Managing rug production in a variety of places in Iran is a difficult job….far distances and different cultural issues affect our success (QP,4).

> Weavers in all provinces have different requirements and the traditional rug weaving has a significant impact in their techniques…by employing agents from their territories we solve such problems (QP,10).

Producers employ agents to have regular interactions with weavers and the cultural proximity between the agents and weavers facilitates coordination. In the regions where the rug industry is declining, producers make rugs with complete control because of a high degree of power in their relationships with the weavers; the agents can ask for specific details to be used in rugs. The weavers are dependent on this situation and accept the high level of explicit coordination by these producers in Qom. Also, the reputation of producers in Qom has a profound impact on accepting this high level of managerial control. Producers know that switching costs are very high for weavers and so they are able to manage the rug production with a high level of explicit coordination.

Weavers are in locked-in relationships because producers need to overcome the different traditional and cultural influences on the rug production, and also because weavers have less options to work with the other producers, and less possibility of having a high level of income from their relationships with producers in Qom,. Hence, **captive** governance is dominant rather than a relational linkage.

7-3-2 The role of embeddedness to explain why a specific production mode is dominant in the Qom rug GVC

From an analysis of the role of embeddedness in coordination in rug production of the Qom rug GVC, the importance of regional elements in this coordination is highlighted.

The following discussion shows how embeddedness has shaped the specific modes are dominant in the Qom rug GVC. Producers in Qom are the only actors who can manage the high quality rug production and specific silky type of rugs from this region. A strong network among producers in Qom causes the weavers to have a low level of power in their relationships with producers.

> Our colleagues [producers] know each other, have a good level of relationship; we determine the level of wages at a fair level… (QP1).

This network enhances the uniqueness and innovative aspects of rugs from the Qom region and making such products needs a high level of knowledge that only producers possess. Also, this network position increases producers' power in the rug industry and weavers are always dependent on their relationships with the producers.

> It's barely possible that weavers are able to make Qom rugs by their own…they need our direction in a variety of details on rugs ... (QP,2).

In addition, almost all weavers have come from other regions with different experiences and socio-cultural backgrounds about rug production. Despite their strong traditional and cultural background and a high level of skills, the strong embeddedness in the Qom rug industry causes weavers to ignore their own traditional techniques and elements on rugs and just follow the producers' directions.

> Weavers have to learn more about interacting with producers,…. Learn about different skills that are needed in this industry…… and think about if their traditional skills are useful in Qom rug production (QP,1).

This unequal power allows producers to have a high level of supervision in relationships with weavers and to adopt a high level of explicit coordination. Hence, low cost production in the weavers' location with a high level of supervision is cost-

effective and the h**igh supervision, home-based weaving** when working with weavers within the region is the dominant production mode in the Qom rug GVC. Embeddedness also explains why the other production mode also emerged apart from this dominant weaving mode in Qom.

Unlike the other regions in Iran, rug production does not have a long history in the Qom region. Hence, the number of weavers who can make the Qom design within Qom city is not significant.

> I cannot remember any weavers from Qom… weavers from Qom are working in this industry just for casual occupation (QP,1).

Because of the short history in rug production, producers need more weavers to increase the number of unique rugs, and because of the shortage of capable weavers within Qom city, producers in Qom have expanded their activities to other regions and work with weavers with different tacit knowledge and traditions about rug production.

Due to the proximity of producers in Qom to a variety of regions in Iran, they employ agents who are familiar with the cultural and social factors in each region.

> Our agents must be familiar with the industry and with all aspects of the region to be successful in Qom rug weaving (QP,4).

Producers consider the cultural elements in each region by preparing specific designs that are close to the basis of rug design in the region in which the weaver resides. Then, after some rug weaving projects, they shift slightly to the unique design. All regions appeal for producers in Qom because they can exploit opportunities in the industry in all regions. In other words, the low level of cultural tradition of rug production in Qom creates a necessity for producers to explore opportunities in different regions. Thus, **working with weavers in the active and declining rug industries** has emerged.

7-4 Overall findings and conclusion

The final section of this chapter reviews the overall findings about the different production modes, governance types, and the role of embeddedness in coordination mechanisms in the Qom rug GVC.

7-4-1 Conclusions about the GVC governance framework

In relationships with different weavers in all regions in Iran, three types of governance are adopted in the Qom rug GVC. Table 11 summarises the analysis of the governance types in the Qom region.

In this table, the first three columns show the three Cs' levels. The Qom region is one of the novice regions in the Persian rug industry. Compared to the other regions in Iran, the coordination mechanisms by producers in this city are quite different in Qom. Producers do not tend to make rugs in factories and there is a high level of power asymmetry; the degree of managerial control is very high in relationships with weavers. Qom producers are the only group of lead actors in the Iranian rug industry who can make rugs outside the region in which all of their products are a high quality and expensive in markets. As such, all information about complex products must be transferred to weavers to make such high quality rugs.

Producers in Qom just need capable weavers to make their unique rugs. Low-skilled weavers cannot make Qom rugs and because the number of competent weavers is not sufficient in Qom city, producers find skilled weavers in other regions. In other words, producers need weavers who have the highest capability in comparison with the other weavers in all regions, and find them via regional agents.

Because of the non-standard codification in this industry, producers cannot find a single way of codifying information (such as making comprehensive instructions) to transfer all the needed knowledge to make Qom rugs. Hence, verbal and face-to-face linkage is the best way to exchange information with weavers. The low codification ability causes the need for a high degree of explicit coordination, and market and modular linkages have not emerged in the Qom rug GVC.

Table 11 also shows that among the three governance types, the relationships with weavers in the active rug industry have observed and predicted governance types that are aligned. For the other two production modes, these governance types are not matched.

7-4-2 Conclusions about the embeddedness issue in coordination of the chain

Two main aspects in the role of embeddedness in coordination of the Qom rug GVC are explanations for the mismatch between the two governance types and also for the dominant production mode in this region.

The first issue is about the mismatch between the observed and predicted governance types. The first mismatched production mode is in working with home-based weavers within the Qom region in which the observed governance type is hierarchical but Gereffi et al.'s (2005) framework predicts a relational linkage. Producers in Qom have a high degree of power due to their strong network embeddedness within the region. Because of the agglomeration between producers in this city, the power of producers has been increased in recent years. To make high quality silk rugs based on unique designs, they utilise this power to adopt complete managerial control over rug production.

In Table 11, two important issues should be explained for more clarity involving the high level of capability of weavers as well as the high level of explicit coordination. The level of capability of weavers in the three production modes in Qom is not the same high quality. Rather, they are considered to be highly capable weavers due to their comparison with the other weavers in the Persian rug GVC.

As Figure 61 shows, weavers in the regions with an active rug industry have greater capability than the other weavers in the two different production modes. Similarly, the capability of weavers within Qom city is higher than weavers in the regions with a declining rug industry. Within in the GVC framework, the value of the 3Cs is low or high, but the main idea is that the 3Cs can represent a specific value between low and high. Thus, two different comparisons should be considered when considering the capability of weavers, namely, a comparison of weavers in the Persian rug industry, and a comparison of the weaver capabilities in the Qom rug GVC. In this way, all weavers in the three production modes are highly capable weavers, but are not the same when compared to each other.

Table 11- Summarises of the three governance mechanisms in the Qom region

Production mode	Capability of weavers	Complexity of transaction	Codification	Explicit coordination	Gereffi et al. (2005) predicted governance type	Observed governance type	Alignment between identified and observed governance
High supervision, home-based weaving	High	High	Low	High	Relational	Hierarchical	×
Outside the region A (Regions with an active rug industry)	High	High	Low	High	Relational	Relational	✓
Outside the region B (Regions with a declining rug industry)	High	High	Low	High	Relational	Captive	×

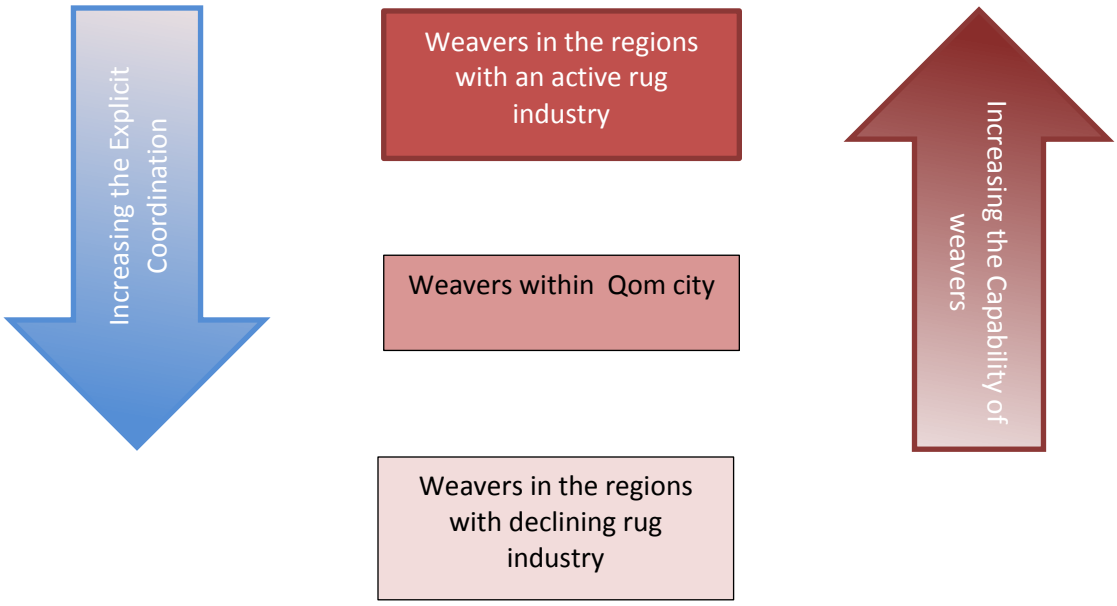


Figure 61- The level of capability of weavers and explicit coordination.

In addition, the level of explicit coordination is, to some extent, similar to the capability of weavers. In a general sense, producers in Qom need to ensure the quality of their different and unique, high quality rugs. As a result, they must adopt highly explicit coordination to be sure about this level of quality; or, their explicit coordination is higher than in the other regions because of the importance of the quality of their unique rugs. However, this high level of explicit coordination is not the same in relationships among the weavers in the three production modes. Different levels of highly explicit coordination in relationships with weavers are related to the capability of the weavers.

In working with weavers in the regions with an active rug industry, producers adopt a relatively high level of explicit coordination that occurs by person-to-person interactions over the duration of rug production. When working with weavers within Qom city, producers are able to control the rug weaving by employing weavers in their

specific home-based production mode because of the proximity between producers and weavers. Finally, in working with weavers in the regions with a declining rug industry, producers need to invest in weavers to enhance their skills to be able to make Qom rugs. Therefore, they prefer to make locked-in relationships with these weavers.

The above explanation about the level of the capability of the weavers and the explicit coordination is obvious in Table 11. Because in Gereffi et al.'s (2005) approach the level of the weavers' capability should be labelled as high, the theory predicts the relational governance type for all three production modes. However, from a comparison of the capability of weavers and the explicit coordination within the region and among the production modes, different observed governance types are proposed.

In addition, because weavers are immigrant suppliers from other regions, they are not familiar with the socio-cultural aspects of rug industry, and this issue enhances the degree of the producers' power. Thus, because of the impact of the network and societal embeddedness, producers do not have the same level of relationships and coordination in the rug production within Qom city in the relational governance type.

The second mismatch is in working with weavers in regions with a declining rug production. The observed governance type is captive but the GVC governance approach predicts a relational linkage. Because weavers in these regions have a lower capability compared to the other weavers in the Qom rug production, they do not have sufficient network power or social position to have face-to-face interactions with producers (or agents) and with a minimum level of interaction, weavers are able to make high quality Qom rugs. Rather, the societal embeddedness in the other regions that weavers bring to the rug production causes producers to increase the managerial control when working with these weavers to prevent their influences in rug-making. Hence, producers have tried to make a locked-in relationship with these weavers

instead of a production mode in which weavers have a degree of independence in their rug production.

The second major issue about the role of embeddedness in coordination mechanisms in the Persian rug GVC is to explain why a specific production mode is dominant in each region. Because rug production is young in the Qom region, rug-making is not a part of the culture within Qom city. In other words, people who are originally from Qom are not willing to be weavers and make handmade rugs. Hence, immigrant weavers find this as an opportunity to work for producers in Qom. Because the number of these weavers is limited within the city, producers have found that they have to refer to weavers in other regions.

Also, working with weavers in all regions (active and declining rug industry) facilitates network embeddedness in the Qom rug GVC where strong linkages between producers and the high social position for Qom producers in the Persian rug industry mean that weavers in other regions are keen to work with producers in Qom.

Chapter 8
Discussion and Conclusions

8.1 Introduction

In this chapter, the findings from analyses of the interviews from the three case studies are discussed to answer the research questions and address the identified gap in the GVC literature. In section 8.2 the research objectives are restated and in section 8.3 the key findings on the governance in the Persian rug GVC are discussed. In section 8.4, the

role of embeddedness in shaping the specific production mode and the operation of particular governance types in each region are discussed.

8.2 Review of the objectives of the research

The main aim of this research was to answer the following overarching question:

R.Q: To what extent does Gereffi et al.'s (2005) framework provide a basis for understanding how the Persian Rug GVC is coordinated in different regions?

To answer this question, three case studies of the major provinces of Isfahan, Tabriz, and Qom in Iran were conducted and the coordination of the rug production in each was investigated. The relationships between the key actors in the coordination and the main production modes and governance types within each region were explored to answer the following question and sub-questions:

RQ1- In what important ways do the coordination mechanisms within the Persian rug GVC differ across regions?

> ***RQ.1a What production mode have emerged in each region?***
> ***RQ.1b To what extent can the three determinant variables predict the governance of the Persian Rug GVC?***

In the three regions, producers have different aims and ways to make specific rugs in regards to the demands from a variety of domestic and global markets. Identifying these production modes provides a systematic way to examine the coordination mechanisms throughout the chain. The three determinant variables or three Cs (complexity of information, codification of knowledge, and capability of suppliers), were used to identify the governance types of varying relationships between buyers

and suppliers but they did not explain the emerging production modes. In addition, according to the observed governance types in the empirical chapters, the three Cs also did not explain several governance types within the Persian rug GVC. Thus, the second phase of this research was to explore the basis of the above differences and how regional elements influence coordination. Specifically, the concept of embeddedness from the global production network (GPN) framework was used to explain the regional influences on the coordination and production modes of the Persian rug GVC.

RQ.2- What is the role of embeddedness in shaping coordination mechanisms in the Persian rug GVC?

> ***RQ.2a What is the role of embeddedness in shaping different production modes in the Persian rug GVC?***
>
> ***RQ.2b What is the role of embeddedness in shaping specific governance types in each production mode?***
>
> ***RQ.3c How does embeddedness explain the variation of governance types within each production mode?***

In the next two sections, the key findings of the present research are discussed.

8.3 Discussion of the key findings on the governance in the Persian rug GVC

In the first phase of this research, the relationships between key actors were investigated to explore the coordination mechanisms of the Persian rug GVC. The GVC framework proposes that the process of coordination is 'driven' by strategies and decisions of specific lead actors in terms of inter-actor linkages (Ponte & Sturgeon, 2014; Sturgeon, 2009). The GVC framework provides a basis for identifying the type of governance based on 'internal variables' (Fold, 2014), and Gereffi et al. (2005) suggested

that analysis of the complexity and codification of information and the capability of suppliers can determine the governance types. As a result, a taxonomy of governance types was conceptualized involving the market, modular, relational, hierarchical, and captive types (Fold, 2014; Gereffi, et al., 2005). (Fold, 2014; Gereffi, et al., 2005).

The first aim of this research was to explain the role of the main lead actors in the governance of the Persian rug GVC by addressing the first research question: **in what important ways do the coordination mechanisms within the Persian rug GVC differ across regions?**

To answer this question, the three main regions of Isfahan, Tabriz, and Qom were selected based on the investigations from experts in the rug industry. A variety of ways to produce rugs operates in each region and these were analysed in the empirical chapters under the concept of 'the production mode'. The production mode refers to the structures, behaviours, and techniques that producers utilize to make specific rugs. Four production modes were identified in the Persian rug GVC in which three production modes are basically similar the three regions: establishing *rug factories* in the producers' location of operation; working with *home-based weavers* with high amounts of supervision (high supervision, home-based weaving); and working with *home-based weavers* with low amounts of supervision (low supervision, home-based weaving). In addition, each region has a unique production mode when working with the additional weavers.

In rug factories, producers employ weavers and supply all requirements, including the designs, fibres, location of operation, and tools. A pre-agreement about wages and completion time are discussed between the producers and weavers before each rug project. This production mode has been adopted by producers in the large cities of Isfahan and Tabriz in which the rug industry has an historical background of using this production mode.

In high supervision, home-based weaving, producers coordinate rug production in the weavers' homes and employ regular managerial control to ensure the quality of products based on prepared designs. Weavers in this production mode need more supervision to make rugs of the required quality. This production mode has emerged in Isfahan and Qom.

In the low supervision, home-based weaving, producers have less regular control over all stages of rug production because weavers can make rugs based on their experiences and tacit knowledge. This production mode has emerged in Isfahan and Tabriz.

Additionally, each region has specific conditions that have resulted in producers adopting unique production modes in working with the other weavers. In Isfahan producers work with independent weavers, in Tabriz some producers (cooperatives) work with village weavers, and in Qom producers expand their activities to work with weavers in different regions. The summary of the findings from the empirical chapters about the different production modes and governance types is shown in column 2 of Table 12.

The findings from the empirical chapters suggested that although similar production modes are employed in these regions, the governance types in each vary across regions. For instance, governance in the low supervision, home-based weaving in Isfahan is modular but in Tabriz it is relational. In other words, compared to Isfahan in this production mode, producers in Tabriz employ a high level of explicit coordination. This research investigated such issues by analysis of the three Cs from the GVC governance framework of Gereffi et al. (2005) and compared the results with the observed governance types in each production mode.

Table 12 summarises the findings from the empirical chapters in terms of how the three Cs (complexity, codification, capabilities; see columns 3 – 5) theoretically predict the

expected governance type (column 6) in different production modes (column 2) in each region (column 1). This table also reports the observed governance type (column 7) that prevails in the relationships between the main buyers and suppliers in the Persian rug GVC. As shown in the last column of Table 12, the three Cs does not predict the governance type for some production modes. In this section the findings about the governance types in the three empirical chapters are discussed by comparing the production modes.

8.3.1 Comparison of the production modes

The ways that the production modes are governed in different regions are dissimilar. These differences in governance mechanisms are discussed in this section by comparing each production mode across the regions in two ways. First, the observed governance types will be compared to discuss the issue that the same production mode is governed in varying ways in different regions. Second, to discuss the issue that some production modes are not governed in the way predicted by Gereffi et al.'s (2005) model, the theoretically predicted governance types from the analysis of the three Cs are discussed, followed by a comparison of the above observed and predicted governance types. Figure 62 shows how these comparisons are related to each other.

Table 12- The production modes and coordination types in the three regions.

Region	Production mode	Complexity	Codification[1]	Capabilities	Gereffi et al. (2005) predicted governance type	Observed governance type	Alignment between predicted and observed governance type
Isfahan	Factory	High	Low	Low	Hierarchal	Hierarchical	√
	High supervision, home-based weaving	High	High	Low	Captive	Captive	√
	Low supervision, home-based weaving	High	High	High	Modular	Modular	√
	Independent weaving	Low	Sufficient	High	Market	Market	√
Tabriz	Factory A (Permanent weavers)	High	Low	High	Modular	Hierarchical	×
	Factory B (Temporary weavers)	High	Low	Low	Hierarchical	Hierarchical	√
	Low supervision, home-based weaving	High	Low	High	Relational	Relational	√
	Village weaving A (Traditional weavers)	Low	Sufficient	Sufficient for low quality market	Market	Market	√
	Village weaving B (Trained weavers)	High	High	High	Modular	Relational	×
Qom	High supervision, home-based weaving	High	Low	High	Relational	Hierarchical	×
	Outside the region A (Regions with an active rug industry)	High	Low	High	Relational	Relational	√
	Outside the region B (Regions with a declining rug industry)	High	Low	High	Relational	Captive	×

Note. [1]Low codification may refer to low absolute levels of codification, and often refers to levels of codification that are incomplete even if substantial amounts of codification have taken place. Sufficient codification refers to situations in which the amount of codification is sufficient for successful transactions.

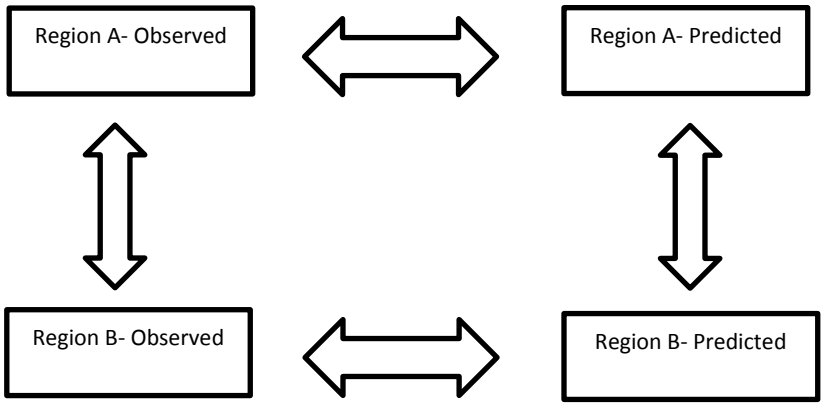


Figure 62- Different comparisons in each production mode.

8.3.1.1 Factory production mode

The factory production mode has been adopted in Isfahan and Tabriz (two types of factories in Tabriz). Rug factories are equipped by producers to provide an environment to exploit the opportunities from the Persian rug industry. The discussion of this production mode first compares the observed governance types in the two regions followed by a comparison of the predicted governance types based on the analysis of the three Cs, and finally, the observed and predicted governance types are compared in each region.

Observed governance types: In these two regions, producers make rugs in factories with different aims. The main aim in the two regions is to control the rug production as much as possible. In Isfahan producers need this production mode to make unique and innovative rugs (because the other production modes have less possibility of providing complete control over rug production), and in Tabriz producers have established rug factories to increase the volume of high quality goods.

In both regions weavers are recruited and have to work for just one specific producer to make rugs in the producers' location of production using the producers' equipment. Weavers can switch to work with other producers but they prefer to be employed long-term by one specific producer as this increases their income. In this production mode producers have a high degree of power to determine all tasks in different stages of internalised rug production. They have sufficient knowledge to decide which elements of the rugs have to be made (or altered during weaving). To make high quality rugs, producers need managerial control of their rug factories and exert high levels of explicit coordination on all aspects of rug-making so as to minimise the impact of errors due to weavers' techniques. These factors characterise a **hierarchical** form of governance in relationships with weavers in rug factories in the two regions.

Predicted governance types: The next step of the discussion of the governance type is to explain the predicted governance type based on the three Cs.

Complexity of transactions: The level of complexity of transaction is similar in the two regions. Despite the different aims of producers in setting up rug factories, in both regions producers make complex rugs and have to exchange complex information about the required rugs for the supply-base to be certain that the outputs from the factories are proper for their target market.

Capability of suppliers: Suppliers in the two regions have a different level of capability. Weavers in factories in Isfahan are a group of *females* who are able to work outside their home but their skills are not *sufficient* to work independently; they need close supervision to be able to make high quality rugs. Compared to the level of capability of the weavers in the other production modes in this region, they have a lower level of capability. Producers in Isfahan need these weavers because of the shortage of suppliers in this industry in Isfahan.

In Tabriz, two groups of *male* weavers work in rug factories: permanent and temporary. Permanent weavers are originally from urban areas within the Tabriz city area and because of the surplus of weavers, producers can select skilled weavers from the competitive supplier market. Thus, permanent weavers in rug factories in Tabriz are highly capable. Producers employ these weavers to make specific and valuable rugs, usually in separate rug factories from the other weavers. However, to make cheaper rugs, producers employ temporary weavers who are mostly from rural areas (who have moved to the city) and have seasonal and temporary jobs in other industries. Their capability is much lower than permanent weavers; thus, the capability of permanent weavers is high and the capability of temporary weavers is low (compared to the different weavers in Tabriz).

Codification of information: Codification is an important element in determining the governance type in the factory production mode. In Isfahan, producers have established rug factories to make their own unique designs and high quality branded rugs. Rug factories are the only production mode in Isfahan in which producers have complete control of all stages of rug production. In Isfahan, producers employ verbal interactions in factories regarding the requirements of production because weavers do not have sufficient capability to work independently and the level of codification that is possible is not sufficient to exchange the required level of specification of production requirements. Compared to the other production modes in Isfahan (such as independent weaving or the low supervision, home-based weaving) these weavers have lower skills. As a result, producers have to codify knowledge using written instructions, but in addition, they must employ verbal interactions to exchange further knowledge and increase the quality of products within rug factories. Hence, despite attempts at codification, the capability of many weavers is such that the codification is

insufficient for the production of quality rugs without the close supervision and monitoring of production.

In Tabriz, weavers in factories are men and providing codified instructions for each rug is not cost-effective. As such, the possibility of face-to-face and direct interaction is suitable for verbal direction to transfer the required level of specification of production requirements. The verbal directions also reduce the traditional influences and/or any possible faults in rugs created by temporary weavers. Thus, the level of codification is again insufficient for weavers to work independently of supervision.

According to Gereffi et al.'s (2005) model, a *hierarchical* mode of governance would be expected in Isfahan and also in working with temporary weavers in rug factories in Tabriz because the linkages between producers and weavers are characterised by high complexity and insufficient (low) codification and insufficient capability of weavers to produce rugs independently. The governance mode observed accords with this prediction. In Tabriz, Gereffi et al.'s (2005) model predicts a *modular* linkage in rug factories operating with permanent weavers (as complexity is high, codification is low and capability is high); however, as with the other factories, hierarchical governance was also observed. Therefore, the question arises as to why producers internalise production, and why weavers choose to be internalised when it should be possible, theoretically, to engage in a modular form of governance. Section 8.4 uses aspects of embeddedness to propose some explanations.

8.3.1.2 High supervision, home-based weaving

This production mode is adopted in Isfahan and Qom. Some home-based weavers need a high level of supervision to make good quality rugs. This section discusses this production mode by comparing the observed governance types in the two regions,

analysing the predicted governance types based on the three Cs, and finally, highlighting the differences in the predicted and observed governance types.

Observed governance types: The observed governance types are different in the two regions. In both regions, weavers are home-based suppliers and producers do not have complete and daily access to the looms for the purpose of supervision. In addition, producers have experienced some weavers who cannot work with a low level of supervision to make high quality rugs (in Isfahan) or they need greater supervision despite the high level of capability (in Qom region). Producers in Isfahan apply high supervision in relationships with a group of home-based weavers in which their capability is not sufficient to make rugs with few faults, but in Qom the characteristics of rugs cause producers to apply high supervision in relationships with home-based weavers despite them being capable. This is because of the high complexity of Qom rugs and the need for specific knowledge to make high quality silk rugs that only the producers possess. Thus, the ways that producers in the two regions manage the rug production are different.

In Isfahan, weavers in this production mode are low-skilled and the producers only work with them because of the shortage of weavers in Isfahan city. Producers have a high degree of power in relationships with weavers with a low capability and employ high supervision and managerial control to make good quality rugs. Producers try to enhance the skills of these weavers and apply long-term relationships and increase their experiences to make such quality rugs. To keep their efforts safe from exploitation by other producers, they adopt locked-in relationships with a high degree of power within the industry and do not recommend specific weavers to others if they have bad experiences in working with them. As such, high, explicit coordination with these weavers implies a **captive** linkage.

In Qom, the products are unique in the markets and producers need to employ high control of the rug production. However, the essence of the relationships is that weavers are employees who work exclusively for one producer but in the weavers' place of production for a specific period of time. A high level of control of rug production with frequent inspections and a high level of explicit coordination to make rugs in terms of both written instructions and verbal interactions highlight the vertical integration mechanism. Producers in Qom select skilled weavers and do not need to invest in increasing their capabilities. Also, producers do not tend to adopt locked-in relationships to work with these capable weavers. However, weavers cannot supply rugs in their own home to the other producers during their employment agreement with the specific producer. As such, the **hierarchical** governance type prevails in this production mode in Qom, which is not matched with the explained linkage based on the three Cs.

Predicted governance types: The above comparison of the observed governance types shows that rug chains are governed by varying methods in this production mode. In the rest of this subsection, the mechanisms of prediction of governance types via the three Cs are first discussed, followed by a comparison of the observed and predicted governance types in this production mode in the two regions.

Complexity of transactions: In both regions, producers need to transfer complex information to the supply-base to make high quality rugs in which producers determine and prepare unique designs to make specific rugs in both regions. However, in Qom the rugs that are made in this production mode are the highest quality products in the Persian rug industry while in Isfahan the lowest quality of rugs is made in this production mode. In both regions, exchanged information between actors about specific designs is complex regardless of the rug quality.

Capability of suppliers: The capability of weavers is quite different in the two regions. The shortage of weavers in Isfahan means that producers need to work with the lowest capable suppliers in the city. These female weavers cannot or do not work in factories, and also do not have sufficient capability to make rugs independently or receive the instructions from producers to make rugs with few interactions. They have the lowest capability compared to the weavers in the other production modes in Isfahan. In Qom, the quality of goods means that producers employ high supervisory control in relationships with highly capable weavers. In other words, producers in Qom only select skilled weavers to make rugs under a high level of supervision.

Codification of information: Codification also has different mechanisms in the two regions. Producers in Isfahan are confined to employ face-to-face interactions with this group of home-based female weavers and they have to transfer knowledge via non-codified instructions. However, lack of verbal and face-to-face interactions with low capable weavers means that the quality of products is not similar to the other production modes. In Qom, goods are unique and innovative silk rugs have complex designs and specific colours. Producers need to supervise all aspects of rug production to make such rugs. Despite working with capable weavers, codification of the unique rugs would take too long to complete, and, thus, be too costly; verbal interactions are, therefore, necessary to transmit the required level of specification of production requirements from producers to weavers. Thus, the codification is not sufficient for making high quality Qom rugs and face-to-face interactions are essential to transfer knowledge.

Summary: With reference to the GVC governance framework, in Isfahan the high level of complexity of the transactions, the high degree of codification, and the low capability level of the weavers are predictive of a *captive* governance type, as observed. In Qom, Gereffi et al.'s (2005) model predicts a *relational* linkage between producers and this group of weavers in regards to the high complexity of information, low codification,

and high level of capability of the weavers. However, the observed governance type is **hierarchical**. Possible explanations for these differences are explored through the lens of embeddedness in Section 8.4.

8.3.3 Low supervision of home-based weaving

A low supervision of home-based weaving has emerged in Isfahan and Tabriz with different aims. Producers in Isfahan make their own branded and unique rugs in factories and they also need to work with skilled, home-based weavers to increase the volume of high quality products. In Tabriz, producers make branded rugs by working with home-based, urban weavers. The following discussion compares the observed governance types in the two regions, the three Cs and the predicted governance types, and finally, these governance mechanisms.

Observed governance types: In Isfahan, producers ask skilled weavers to make rugs based on orders but in the weavers' homes. The design is always the main feature that producers supply to weavers and, if needed, other requirements, such as fibres, tools and looms. Producers provide the designs with fully codified details and face-to-face interactions are limited. Although weavers cannot sell the made-to-order rugs on the open market, they are able to supply them to a variety of buyers. These weavers usually operate several looms in their own home. Low levels of explicit coordination are thus needed in this relationship and weavers with different links to buyers have low switching costs and, therefore, a high degree of power in their relationships with producers. Such a linkage matches the **modular** type.

In Tabriz, face-to-face interactions are used to undertake transactions. Competent weavers have a high level of tacit knowledge to work with producers and verbal interactions are widely utilized. Due to the lack of codification, there is frequent inspection and verbal direction in which the level of explicit coordination is high and

the chain is coordinated based on trusted relationships. Thus, a **relational** linkage is observed in the relationships between weavers and producers.

Predicted governance types: The following discussion provides the predicted governance types based on the three Cs and compares these variables in the two regions in this production mode.

Complexity of transactions: In both regions, complex products are made in this production mode and producers need to transfer a lot of information about different aspects of rugs. In this way, producers need to exchange the complex information to weavers.

Capability of suppliers: In both regions, skilled weavers are home-based. These weavers are capable of making rugs and following instructions with a low level of supervision. Thus, their capability is sufficient to make such high quality rugs.

Codification of information: Codification of rug design for high quality rugs is costly for producers due to the time it takes. Thus, while some codification may occur, complete codification is avoided if possible with reliance on verbal exchanges to undertake transactions. In Isfahan, opportunities for face-to-face interactions are limited because weavers are women; producers, therefore, have to provide as complete written instructions as possible. In contrast, in Tabriz it is possible for producers to verbally interact with the weavers because they are male; producers, thus, do not need to make costly, time consuming and completely codified instructions. Therefore, the level of codification is not high in this production mode in Tabriz, but is high in Isfahan. The nature of the production requirements does not appear to explain the difference; rather, cultural aspects associated with gender relations, an issue of cultural embeddedness, are implicated.

Summary: According to the Gereffi et al.'s (2005) model, a *modular* governance type is expected, and was observed in Isfahan because the linkages between producers and weavers are characterised by the high level of all three Cs. In Tabriz, however, the linkage between producers and weavers are characterised by high complexity, low codification, and a high capability of weavers and the prediction is a *relational* governance type, also as predicted. However, the underlying reasons for the difference appear to be related more to issues of cultural embeddedness affecting the need for codification than the industrial characteristics of production per se.

8.3.4 Working with other weavers

Each region has a unique production mode because producers have different aims based on the demands from their target market and regions have different business environments. Consequently, in working with other weavers, unique production modes have emerged in each region. This section discusses how the unique production modes are governed in different regions. The discussion in this production mode is about the observed and predicted governance types based on the three Cs, and a comparison of these two governance types.

Isfahan

Observed governance types

In Isfahan, professional weavers work independently in this industry and sell their products to a number of buyers in open markets. All stages of rug production are under their own control and they have interactions with a number of buyers at the point of sale. With little explicit coordination, suppliers negotiate the price of the product and can sell the rugs to open markets with low switching costs. They have sufficient power

to accept the negotiated price or shift to work with the other buyers. The observed governance type is matched with the **market** linkage.

Predicted governance types

Complexity of transactions: In relationships with independent weavers in Isfahan, transactions only involve agreements on a price. As a result, a low level of complexity is the essence of the transaction in this production mode.

Capability of suppliers: In Isfahan, independent weavers must have a high level of capability to work in this industry without supervision during rug production.

Codification of information: In relationships with independent weavers in Isfahan producers only transact about price based on the quality of the rug. There is little that is explicitly codified as such, and there is nothing apart from price that requires consideration. These characteristics are consistent with the market governance observed.

In the independent weaving production mode in Isfahan, the three Cs predict the market governance type for this production mode.

Tabriz

Observed governance types

In Tabriz, urban producers are reluctant to work with village weavers. As such, the cooperatives of rural rug weavers have emerged in each sub-region or village to support village weavers, mostly in providing raw materials and buying the rugs from these weavers due to a lack of fair buyers. Weavers in rural areas have a low level of capability and their techniques in rug production are inherited from their traditions. Two groups of weavers with different characteristics involving traditional and trained

village weavers work with cooperatives. Traditional village weavers can make rugs with limited designs and colours that have a medium to low quality and are cheap products. Because these weavers have seasonal or other main jobs such as agricultural work, they are not willing to increase their skills to make higher quality rugs. To support the sale of their rugs, cooperatives buy their products and negotiate their price with these weavers. Reaching a fair price with cooperatives can be the best option for weavers in terms of income and convenience. With low explicit coordination and low switching costs, the observed governance type in relationships with these weavers is a **market** linkage.

Trained village weavers have a low capability but they need to increase their income by making higher quality rugs. The union of cooperatives has emerged to organise and manage the supporting roles of cooperatives in village areas. This union provides training courses that have increased the skills of some village weavers to be able to follow verbal directions and guidelines from cooperatives (as producers) to change traditional elements and make better quality rugs. Weavers are not internalized and those who are not cooperative employees can make rugs for a number of potential buyers. But for the specific order, they are not able to sell their rugs on the open market. The verbal and frequent directions by cooperatives mean that a high level of explicit coordination is applied in the relationships with these weavers. In relationships with cooperatives, these weavers have enough capability to operate within a relational mode of governance. As such, the observed governance is matches the **relational** linkage.

Predicted governance types

Complexity of transactions: Transferring information about production is not significant between actors in the relationships with traditional village weavers in Tabriz, because the negotiation about price is the only major issue. As a result, a low level of complexity

is the essence of the transaction in this production mode. However, in relationships with trained village weavers in Tabriz, the union of cooperatives provides important information about global (and also domestic) demands, which is provided by their representative in Hamburg, Germany. Village weavers are directed to modify (and change) the traditional elements according to the provided information. If weavers can add these elements in their products, they are able to achieve greater value from the GVC. As such, complex information must be transmitted between actors.

Capability of suppliers: Compared to weavers in urban areas in Tabriz, village weavers have a lower capability. However, in terms of working with cooperatives and also the low price and low quality markets (both compared to the other products from the Tabriz region), they have sufficient and high capability.

Codification of information: Producers do not exchange knowledge with the supply-base in relationships with traditional village weavers in Tabriz. As a result, the level of codification is zero and, therefore, cannot be determined as high or low. However, in relationships with trained weavers in Tabriz, the required information about specific elements in the design and/or in particular colours is complex, and cooperatives codify the information by working with expert designers. In this way, the level of codification is high despite cooperatives verbally interacting.

As a result, the market governance type in working with traditional village weavers and the modular governance type in working with trained village weavers are predicted in the Tabriz region.

QOM

Observed governance types

In the Qom region, producers need to work with weavers in the other provinces because the number of capable weavers is limited. Two groups of weavers work in this production mode involving those in provinces with an active or declining rug industry. Producers employ agents to exert managerial control on rug production in the other provinces. The observed governance type in the first group of provinces (active rug industry) matches the **relational** governance. Via a high level of explicit coordination achieved by employing agents, producers exchange knowledge with skilled weavers. Weavers are not in locked-in relationships with producers in Qom because they have the other option of selling their products at a fair price to potential buyers within their own region. For the second group of weavers, all conditions are similar except in that they do not have the option of selling to other buyers if producers in Qom cut their relationship. Their power to manoeuvre in the rug GVC is limited and they have to exit from the industry if they do not have relationships with producers in Qom (or send their low level of innovation in the products to the other regions with lower prices). Because the majority of these weavers are women, migration to other regions to work in the rug industry is not possible. In this case, producers in Qom make locked-in relationships with these weavers to have exclusive, long-term weavers in the other regions; therefore, the governance type matches the **captive** linkage.

Predicted governance types

Complexity of transactions: In Qom, producers make high quality and unique silk rugs with complex designs in relationships with both groups of weavers outside the region, and complex information about making such rugs needs to be transferred.

Capability of suppliers: In Qom, producers work with highly capable weavers in both groups of regions outside the Qom city in regard to the specific requirements of production.

Codification of information: In Qom, producers need to exchange important information with the supply-base but the codification tool (making written instructions) it is not sufficient to make such unique rugs; the agents need to apply verbal interactions to make the unique Qom silk rugs. Thus, some codification occurs but it is insufficient for transactions to occur without substantial interaction, and thus, codification considers low in relationship with these weavers.

In Qom, a *relational* governance type is predicted based on the three Cs in both groups of regions which are characterised by a high level of transaction complexity, a low level of codification, and working with highly capable weavers.

Summary: twelve governance types are identified in different production modes in the Persian rug industry. Eight of these mechanisms are explained based on the three determinant variables (three Cs) and the other four linkages have different characteristics that are not aligned with the predicted governance. The next section provides a discussion about the role of embeddedness to explain the above variation and inconsistencies in governance mechanisms across the three regions.

8.4 Discussion of key findings on the role of embeddedness in the coordination of the Persian rug GVC

The previous section discussed the observed governance types, how the three Cs predicted the governance types, and compared these governance types in each production mode across the three regions. It showed that the GVC governance framework has limitations in predicting all governance types based on the three Cs in relationships between the main suppliers and buyers. In addition, Gereffi et al.'s (2005) model does not explain how the production modes are shaped. In this section the role of embeddedness to explain the above issues is discussed.

Both the GVC and the GPN frameworks are in the *under-theorized* realm and scholars are still looking for a broader theory (cf. Ponte & Sturgeon, 2014), and/or reframing the debate of both approaches, and making links to build a more theoretical and dynamic explanation of the different activities in the global economy (cf. Fold, 2014; Yeung & Coe, 2015). These theoretical attempts merge a variety of newly added viewpoints and add different factors to the debate about the coordination of global activities. This research aimed to show that embeddedness from the GPN approach can explain how specific production modes and governance types have been shaped, investigate the reasons for consistency between the predicted and observed governance types, and explain the reasons that the governance types in specific production mode that in different regions are differ.

In this section, three main points are discussed to explore the role of embeddedness in the coordination mechanism of the Persian rug GVC. First, the overall role of embeddedness in shaping different governance types is reviewed. Second, the reasons that the dominant production mode varies across regions are explored. Finally, the role of embeddedness to explain why observed governance types have occurred instead of the predicted governance types is discussed.

8.4.1 Overall role of embeddedness in the governance types of different regions

This section reviews the impact of regional elements related to embeddedness issues in shaping different governance types in the Persian rug GVC. In Isfahan, because of strong embeddedness, some regional factors have an impact on shaping specific governance types. Because of the gender issue, the power of producers is high, which allows them to control all aspects of rug production under a hierarchical linkage. However, this regional element is not a barrier for weavers; rather, the cultural norm that allows female weavers to have a job outside the home under a formal job contract helps them to work in rug factories.

In some relationships between producers and weavers, the agglomeration of producers in particular geographical areas constrains weavers low in capability from switching business partners and they have to work in a locked-in and captive linkage. For highly capable weavers the switching cost is low and they make good network ties with a number of producers. This network embeddedness increases weavers' power in negotiations with producers and allows them to coordinate all stages of rug making in a modular linkage. In addition, living and working within Isfahan and being familiar with the local culture enhances the power of some expert weavers and they complete all

stages of rug production independently and supply the rug to the market directly in a market linkage with producers and buyers.

In Tabriz, social position is paramount for weavers because the impact of gender is not significant (the majority of weavers are men). However, weavers do not have enough power to make strong network ties where the network embeddedness among producers is very powerful and historic. As a result, weavers cannot work independently and producers coordinate almost all stages of rug production. However, weavers have a degree of legitimate authority to impact on the weaving stage of rug making. The geographical and cultural proximity means that producers are able to have person-to-person interactions with a low degree of direct supervision. Hence a relational linkage is dominant in relationships with these weavers.

Producers also establish rug factories in Tabriz to increase the volume of their production. However, some important issues from embeddedness in this region impact on governance types. Producers are socially known as respected actors within the industry. Thus, they have a source of power to coordinate all stages of rug production within their own rug factories. Their proximity to the rug centre in Tabriz (including the Grand Bazaar and the other actors) and also the remoteness of weavers to these places means that producers are able to have a strong network with other producers that exclude weavers. In this case, the switching cost for weavers is high and producers can employ weavers (both temporary and permanent weavers) in rug factories under a hierarchical linkage.

Relationships with rural producers (cooperatives) and village weavers are different. Traditional weavers work far from both cooperatives and Tabriz city and the impact of heritage and traditions on their products is significant. As such, they adhere to their origins and just sell their products to the cooperatives. The only issue is the price, and so market linkage is the governance mechanism in this relationship. On the other hand,

the activities of trained village weavers are linked to the role of cooperatives in the coordination mechanism. Because of the geographical proximity, these weavers are able to work directly with cooperatives and access the union of cooperatives' training courses. Hence, these weavers enhance their capability and are able to work on higher quality rugs compared to the traditional village weavers. As a result, the role of tradition is not significant and, by person-to-person interactions, cooperatives can exchange needed information about different designs and global demands with these weavers. Under a relational linkage these actors provide high quality rugs for global markets.

In Qom, producers work with weavers within and outside the region. Weavers within Qom city are immigrant and bring their traditions to the industry but the weavers cannot use their own techniques and traditions because producers have a high degree of power and knowledge. These weavers are not able to achieve a good level of social position and network power within the industry, and producers internalise them in their business to have complete control on all aspects of rug-making. As a result, a hierarchical linkage is the main governance type in working with weavers within this city.

Interactions with weavers outside the region are influenced by embeddedness. Weavers in the regions with an active rug industry have strong network ties and social interactions with the main actors in their own regions. They extensively adhere to their regional culture, and with strong network ties the switching costs are low if there are any difficulties in working with producers in Qom. As such, because of the remoteness of these regions, producers in Qom recruit agents who are familiar with the culture of the region to make in-person interactions with relational governance; producers are able to make high quality Qom rugs.

In the regions with a declining rug industry, producers have a high degree of power because there is no network power for weavers but due to a lack of social interactions

within the rug industry in these regions, producers are able to make locked-in relationships and have a captive governance.

In sum, producers in the three regions of Isfahan, Tabriz, and Qom deal differently with embeddedness issues, and the governance types are influenced by regional elements.

8.4.2 The role of embeddedness in explaining why the dominant production mode varies across the regions

In this section, the dominant production modes in different regions are compared to examine how embeddedness has a different impact on the coordination mechanisms within the rug industry.

Different elements of embeddedness play a different role in the three regions. Societal embeddedness in these regions causes a variety of impacts on the relationships between the key actors. One of the main embeddedness issues is the gender of the suppliers and the cultural aspects of this element in shaping the specific production mode as well as making it dominant among other possible modes. Because in Isfahan the majority of weavers are women, socio-cultural norms drive producers to establish a specific environment for the workforce. This aspect of embeddedness does not work in Tabriz because weavers are men and they have different requirements based on their gender. Male weavers in Tabriz need a source of income and a way to provide social position. As a result, establishing rug factories in Isfahan answers the weavers' requirements whereas in Tabriz weavers' needs are met with the low-supervision of their home-based weaving. These production modes are dominant in the two regions.

In Qom, the gender of the weavers has no specific impact on the coordination mechanism but societal embeddedness and working with weavers who are familiar with the culture of the lead actors and the norms within the industry are important. In a

similar way, producers in Isfahan pay attention to this cultural issue and working with weavers who are from Isfahan city facilitates this form of coordination.

Territorial embeddedness in the regions is also important where in Isfahan the proximity of rug factories and the rug bazaar to the weavers' homes allows producers to increase the factory production mode, but in Tabriz the remoteness of the weavers from the centre of rug production leads producers to consider different ways of interaction with the weavers. In Qom, producers solve the remoteness of the other regions by employing agents but this makes higher costs in the rug production and this production mode is not dominant in the Qom region.

The impact of network embeddedness on the regions provides different influence on the dominant production modes. In Isfahan, the agglomeration of producers and their interactions to achieve strong power in the industry directs them to have rug factories and develop this production mode as the main way of rug production. In Tabriz, producers have a stronger network with the other actors than weavers within Tabriz city, and home-based weaving is reinforced by these different network ties. In Qom, the network between producers decreases the power of weavers and home-based weaving is dominant because of the high degree of producers' power.

8.4.3 The role of embeddedness in explaining why observed instead of predicted governance types occurred

The final aspect in exploring the role of embeddedness in the coordination mechanism in the Persian rug GVC is to answer the questions that are raised from the differences between the predicted and observed governance types. In the four production modes, the predicted and observed production modes vary; these are working with permanent weavers in rug factories and with trained village weavers in Tabriz, and also working

with highly supervised, home-based weavers and with weavers in the regions with a declining rug industry in the Qom region.

In regard to the inconsistency in permanent rug factories in Tabriz (in which the observed governance type is hierarchical), the question is why producers internalise rug production if weavers have the capability to operate independently?

One of the main reasons is the source of power for producers in this specific industry. Rug-making in Tabriz city is one of the most prestigious professions and the name of producers is the brand of their product (see Chapter 4). As a result, producers have a rich source of power that counteracts the power of weavers resulting from their high capability. In addition, relationships with the traders in Hamburg and knowledge transfer to their production provide knowledge primacy for producers in Tabriz and these differences in power constrain weavers from working independently. Producers internalise weavers within hierarchies to have complete control on all aspects of rug-making and decrease any impact of weavers on each rug.

In regard to the inconsistency in working with trained village weavers in Tabriz (in which the observed governance type is relational), the question is how weavers have sufficient capability to operate without being internalized or captured?

The main reason is the social role of cooperatives to support village weavers. Cooperatives try to increase the capability of weavers and they adjust the capability with the final products supplying global markets. Cooperatives set up their organisation in terms of supporting role for weavers, but not aimed to make business relationships with industrial and market actors. As a result, the cooperatives' social responsibility does not allow them to make linkages based on hierarchical or captive governances. Thus, among the market, modular, and relational governance linkages,

cooperatives have to work with these weavers in person-to-person interactions to transfer needed knowledge.

In regard to the inconsistency in working with highly supervised, home-based weavers in Qom (in which the observed governance type is hierarchical), the question is why producers internalize production if weavers have the capability to operate independently?

The main reason (which is industrial nature, not embeddedness concept) that the high degree of knowledge and technique of producers in designing and making specific Qom rugs provide this condition in that weavers are capable but they do not independently work on rug production. However, one of the main reasons that producers in Qom have this level of power is related to the network embeddedness in the rug industry in Qom. In addition, weavers in Qom have immigrated from other regions and producers have been socially accepted as the only key actor in this industry in recent decades. Thus, even expert weavers cannot make specific brands independently in a short time and sell their rugs on the open market.

In regard to the inconsistency in working with weavers in the regions with a declining rug industry in Qom (in which the predicted governance type is relational), the questions are why weavers get captured if they have sufficient capability and, therefore, have other options? and why is it not possible for them to switch producers?

The only reason that regions with a declining rug production still produce rugs is because of the support from producers in Qom and the value that they provide by working with these weavers. On the other hand, producers need to make high quality rugs with the same quality as those produced within the region. Because of the remoteness of these regions, employing agents provides control of the rug-making

process if weavers are able to decide about a variety of elements on the rugs; then weavers are captured within the production by producers in Qom.

8-5 Final remarks

In this section, the results from the discussion are used to answer the research questions.

RQ: To what extent does Gereffi et al.'s (2005) framework provide a basis for understanding how the Persian Rug GVC is coordinated in different regions?

For the overarching question, the GVC framework is not able to explain all aspects of coordination from the theory. According to the call of using the other approaches to explore the dynamic of global production (Neilson, et al., 2014) other, similar approaches are required to explore the coordination of the GVCs. The following parts of this section provide the final answer to the main research questions and also their sub-questions.

RQ1- In what important ways do the coordination mechanisms within the Persian rug GVC differ across regions?

> *RQ.1a What production mode have emerged in each region?*
>
> *RQ.1 b To what extent can the three determinant variables predict the governance of the Persian Rug GVC?*

This series of research questions are answered throughout the thesis and provide a basis for for the next step of the analysis. The observed and predicted governance types are explored, compared and provided an initial presumption to explore whether embeddedness compensates for the inconsistencies.

RQ.2- What is the role of embeddedness in shaping coordination mechanisms in the Persian rug GVC?

RQ.2a What is the role of embeddedness in shaping different production modes in the Persian rug GVC?

RQ.2b What is the role of embeddedness in shaping specific governance types in each production mode?

RQ.3c How does embeddedness explain the variation of governance types within each production mode?

For these series of research questions, the analysis of the embeddedness issues showed that the observed governance types are shaped by specific regional elements. In addition, the impact of embeddedness on shaping the production modes and the reasons for the dominance in each region of the specific modes were revealed.

8-6 Limitations of the research and suggestions for future research

This research has some methodological and theoretical limitations. There were two main methodological limitations. First, the results from the case studies of this research may not generalize to other similar industries or situations because of the exploratory nature of the research. The context limits the interpretation of the findings because the lead actors are within the supply base of production and are not global buyers, the analysis tended to evaluate the internal linkages within the industry more than across the GVC. As a result, an analysis of different segments of the GVC is required to show the entire relationships and the impact of these key actors on all interactions. Several coordination mechanisms that occur across the Persian rug GVC were ignored in this research, for instance, the relationships between customers and consumers. Future

research in different contexts within Iran and also in the handmade rug industry in other countries may provide sources for enhancing the reliability of results. Moreover, investigation of the key actors in terms of competition in global markets is another basis for future studies. Recent changes in consumer behavior and demands for cheaper products (which is selling in well-known retailers such as IKEA) impact the way of considering about global markets and finally about the products. Currently, some major producers in this industry in Iran as well as traders in Hamburg port in Germany tend to make specific cheap and acceptable quality of rugs for these huge demands. A considerable shifting to make cheaper rugs in some regions in Iran highlights that such retailers have important role in global Persian rug industry.

Second, the quality of the data from the interviewees is related to the participants' correct and truthful answers. They may have provided unrelated and inaccurate responses. In addition, the limitation in sampling and in considering all of the important participants may have reinforced the bias during the data collection. However, during the in-person interviews, the presence of the researcher with the subject of the questions allowed a shift to a new set of questions that led participants to answer correctly. But, the interview skills of the researcher were not sufficient to manage the participants and some faults in the first round of interviews occurred. Future studies may adopt a different research method to explore the governance types and the GVC framework. In particular, measuring some GVC elements (such as the three Cs), adopting a quantitative approach or using a mixed-methods design to explore the clear coordination mechanisms will provide another viewpoint about GVC governance issues. As explained in chapter three, because the interviews took place in interviewee's workplaces, they inclined to decrease the time of interview. This issue has made some limitations in which the detailed questions were eliminated to have

sufficient time for asking major questions. As a result of short interviews, some minor points during interviews were lost and some questions had not enough responses.

In terms of the theoretical limitation of this research, both the GVC and GPN approaches have some other elements, such as upgrading in GVC and value issues in GPN. Consideration of these important aspects of the frameworks in the context of the research could be the subject of future studies to explore further the materials about the coordination mechanisms within the Persian handmade rug GVC. Currently new combinations are being provided by researchers in both the GVC and GPN approaches (cf. Ponte & Sturgeon, 2014; Yeung & Coe, 2015) and some advanced viewpoints may be provided to increase the quality of the results from future research on the coordination of the GVC/GPN.

8.7 Conclusion

In this research, the main aim was to examine how GVC framework works in a specific industry and what regional elements impact on the governance. Recent efforts by researchers in the GVC and GPN schools have reinforced the previous contribution, but these approaches still do not offer a comprehensive framework to investigate the coordination mechanism of the chains/networks. The usefulness of these approaches together, however, has been less considered in recent research. In this way, the present research aimed to explore the applicability of the GVC governance approach and also investigated the regional impact on the coordination mechanism of the GVC from the embeddedness issues.

The main finding from this research is that the GVC governance framework is not working completely in a specific industry. Several non-alignments predicted by the GVC approach and the observed governance types suggest that GVC needs some other

theoretical reinforcement. As such, embeddedness in different regions was investigated to show that the placeless nature of the GVC approach has some limitations. Considering the embeddedness issues in different segments of value chains provides more insights about the coordination and governance of the GVC. This thesis provides a combination of the GVC and the GPN in order to make a bridge between these frameworks and hopefully provide a new contribution for both approaches.

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Appendix 1- Interview Questions

Queensland University of Technology Brisbane Australia	**PARTICIPANT INFORMATION FOR QUT RESEARCH PROJECT** **– Interview –**

Coordination mechanism, governance types, and embeddedness in Global Value Chain

QUT Ethics Approval Number 1200000660

Interview Questions

Saeed Mohammadi

Actors in the Persian rug industry:

1-Suppliers (Producers):

In regard to the quality, brand, quantity, and design of rugs, the priority of various provinces to conduct interviews are:

1-Isfahan; 2- Tabriz; 3- Kerman 4- Qom; 5- Shiraz; 6- Mashad; 7- Kurdistan; 8- Urumie.

In interviews, they asked by these questions:

3Cs:

Transactions (complexity and codification):

- Can you describe what your priorities are to dealing with specific buyers?
- To what extent do you think it is easy to do business with those buyers?
- Is that any difficulties to interpret their terms in your contract?
- How and when you determine your conditions in contracts?
- In which situation you must have negotiation with specific buyer?
- What are the traditional ways to have a contract with other actors?
- Could you explain the main criteria for a perfect contract?

Capabilities:

- Which training courses you have had in recent years?
- What are your specific skills which you are able to produce rugs for global markets?
- Could you explain what your traditional sources of knowledge (regional, cultural, families, and etc.) are?
- What is your current source of knowledge for new demands?
- Please explain the procedure of traditional learning mechanism in the hand-made Persian rugs?
- To what extent you believe that the quality of your rugs is superb in global markets?

- If you believe the quality of your rugs is required to be improving, what is your pathway to increase it?

Upgrading:

- How you could improve your quality to overcome the current competition in global markets?
- Did you try to export directly (to the global buyers)?
- If so, which conditions prevent the export process?
- How you acquire needed information about the exporting?
- How you find out about the priority of foreign buyers?
- Is there any order via international buyers which you were not ready to fulfill?
- How and when regularly you increase the needed skills?
- Is there any condition which other manufacturers are preferable over you?
- Did you have any course or training session about the increasing the quality of your products?

Power:

- What are the main types of your contract with raw material providers?
- What are the main types of your contract with buyers (wholesalers, cooperatives)?
- To what extent you are able to increase the unit price in your negotiations?
- Do you have any specific features that affect the negotiations (e.g. designing, colors, brand and etc.)?

Competitiveness:

- What are your competitive advantages to producing rugs for global markets?
- How you identify your competitors in global markets?
- Do you have any problem in that competition such as lose your profits?

Relationships with:

Raw Material producers:

- Could you describe how you get the materials from raw material providers?
- Do you have any influence on the price of fiber to pay less?
- What is the amount of raw material cost (per rugs/ percent) which you have to pay?

Cooperatives:

- Do you have defined contract or agreement with buyers?
- What are the main supports from these corporations?
- Do you sell directly to these corporations?
- What is your share from the contract with cooperatives?
- Do you buy fiber or other requirements from cooperatives?

Wholesalers:

- Do you have defined contract or agreement with buyers?
- What is your share from this agreement with wholesalers?
- How many (percent) of your product are sold to the wholesalers?
- How much your income from work with wholesalers?

Merchandisers in Hamburg:

- Do you have defined contract or agreement with buyers?
- Do you sell directly to the Hamburg centre (syndication or sole traders)?
- How many (percent) of your product are sold to these merchandisers?
- How much your income from work with these traders?
- Do you receive any needed material from these actors?

- Do you receive any information about global markets as your deal with these traders (such as demands, new design, colour and etc.)?
- Do you have any experience about work with universities?
- To some extent you are believe that university courses are important and affect on industrial improvement?
- Do you intend to enroll in such program?
- Do you have any relationship with INCC?
- If yes, what is the range of these relationships?
- What supports (fiscal, knowledge, and social) from INCC have effected on your sales and income?
- Which issues do you believe that INCC could able to deal with?

2-Cooperatives:

3Cs:

Transactions (complexity and codification):

- What is your strategy to support weavers and wholesalers to increase their income?
- How you support raw material producers and manufacturers to have a fair contract?
- Do you any support to decrease the problem of international contract for manufacturers and wholesalers?
- To what extent you provide knowledge for interpret the global negotiation and decrease the risk of unfair contract?
- Can you describe what your priorities to dealing with specific buyers are?
- To what extent do you think it is easy to do business with those buyers?
- Is that any difficulties to interpret their terms in your contract?
- How and when you determine your conditions in contracts?

Capabilities:

- Which training courses you have had in recent years?
- What are your specific skills which you are able to produce rugs for global markets?
- Could you explain what your traditional sources of knowledge (regional, cultural, families, and etc.) are?
- What is your current source of knowledge for new demands?
- Please explain the procedure of traditional learning mechanism in the hand-made Persian rugs?
- To what extent you believe that the quality of your rugs is superb in global markets?
- If you believe the quality of your rugs is required to be improving, what is your pathway to increase it?

Power:

- What are the main types of your contract with raw material providers?
- What are the main types of your contract with buyers (manufacturers, wholesalers)?
- To what extent you are able to increase the unit price in your negotiations with buyers?
- To what extent you are able to decrease the unit price in your negotiations with suppliers?
- Do you have any specific features that affect the negotiations (e.g. designing, colors, brand and etc.)?

Competitiveness:

- What are your competitive advantages to producing rugs for global markets?
- How you identify your competitors in global markets?
- Do you have any problem in that competition such as lose your profits?

Relationships with:

Raw Material producers:

- Do you provide learning and training programs for raw material suppliers?

- What is your role to increasing the skills of raw material suppliers for improving the quality of rugs?
- Could you describe how you get the materials from raw material providers?
- Do you have any influence on the price of fiber to pay less?
- What is the amount of raw material cost (per rugs/ percent) which you have to pay?

Manufacturers:

- How many weavers and manufacturers you are support in your region?
- What is your plan to increasing the manufacturer's skills?
- Do you provide learning and training programs for suppliers?
- What is your role to increasing the skills of manufacturers for improving the quality of rugs?

Wholesalers:

- What is the type of contract between you and wholesalers?
- Do you support wholesalers to increase their ability in global markets?
- To what extent wholesalers have constrained your achievement in global markets?

Merchandisers in Hamburg:

- Do you have defined contract or agreement with buyers?
- Do you sell directly to the Hamburg centre (syndication or sole traders)?
- How many (percent) of your product are sold to these merchandisers?
- How much your income from work with these traders?
- Do you receive any needed material from these actors?
- Do you receive any information about global markets as your deal with these traders (such as demands, new design, colour and etc.)?

Universities:

- Do you have any conjunct program with universities or participate in universities' courses?
- Do you have any experience about work with universities?
- To some extent you are believe that university courses are important and affect on industrial improvement?
- Do you intend to enroll in such program?

INCC:

- Do you have any relationship with INCC?
- If yes, what is the range of these relationships?
- What supports (fiscal, knowledge, and social) from INCC have effected on your sales and income?
- Which issues do you believe that INCC could able to deal with?

3-Wholesalers:

Very similar to cooperatives (just without comprehensive support for manufacturers and raw material providers).

4-Traders in Hamburg:

3Cs:

Transactions (complexity and codification):

- Could you explain your ways of negotiation with global buyers?
- Which criteria are important for global buyers to have a successful negotiation?
- How you have purchased rugs from Iran?
- Who determine the contract terms in Iran and international markets?
- To what extent you are able to change the terms to achieve more values from global markets?
- Is there any difficulty to understand the knowledge about global markets and negotiation with global buyers?
- If so, how you make them simple?
- Can you describe what your priorities are to dealing with specific buyers?
- To what extent do you think it is easy to do business with those buyers?
- Is that any difficulties to interpret their terms in your contract?
- How you determine your conditions in contracts?

Capability:

- How your skills provide competitive advantages for you?
- Have you had any training/course about the handmade rugs?
- How you increase your knowledge about global demands?
- What is your resource of this knowledge?

Upgrading:

- Do you have any effort to capture more income from participation in global markets?
- Do you have defined strategy to increase the benefits from global trading?
- Did you play a role as other form of activities (such as retailing in global markets) to increase your income?

Power:

- To what extent you have influence or not influence the contract with global buyers?
- Which conditions provide more ability to increasing profit for you in the global markets?
- Is that any support from global buyers to easier work in global markets?
- Which types (or parts) of your contract are from your priorities?
- Could you explain how you have gained more income from developing your ability to better contract?

Competitiveness:

- What sort of competition in hand made rug do you have in your business?
- Who are the major competitors?
- What is your strategy to overcome the competition barriers?

Relationships with:

Raw Material producers:

- What do you provide for raw material providers?
- What other supports do you provide for raw material suppliers?

Manufacturers:

- To what extent you support manufacturers in Iran?

- How do you buy rugs from manufacturers?

Cooperatives:

- What are your relationships with cooperatives?
- Who determine the terms of your contracts with cooperatives?
- What is the normal unit price (or percent) which you have paid for a Persian rug from these suppliers?
- Could you explain the amount (percent) of your purchases from these types of suppliers?

Wholesalers:

- What are your relationships with wholesalers?
- Could you explain how wholesalers are participated in your business?
- Could you explain the amount (percent) of your purchases from these types of suppliers?
- To what extent (fiscal) you are buying from wholesalers?

Universities:

- Do you have any direct contact with universities?
- Can you explain your opinion about university's program in the field of the Persian rug?

INCC:

- What are your participations/relations with decision making institutions in the Persian rug industry?
- Could you explain how you provide facilitates for governmental institutions to support suppliers?

5-Universities:

Base on the history, background, and capability of universities; the priority for interviewing is:

1- Tehran; 2- Yazd; 3-Isfahan; 4- Tabriz; 5- Shiraz; 6-Kerman.

They asked for:

3Cs:

Transactions (complexity and codification):

- How universities provide knowledge about global markets for variety of actors in this industry?
- What is the impact of universities' courses to increase the overall quality of the Persian rugs in global markets?
- What is the impact of universities' courses to increase the market share for the Persian rugs in global markets?
- What kinds of university's supports provide knowledge about better negotiation with buyers?

Capability:

- What is your role as knowledge provider for the Persian rug industry?
- How your supports (knowledge support) increase the benefits for various actors?
- To what extent graduated students increase the level of technical and modern methods in the Persian rug industry?
- Could you explain the role of universities to increase the value capturing by suppliers in this industry?

Upgrading:

- Is there any improvement in the industry by your direct participation?
- How your university's programs increase the quality of the Persian rugs?
- To what extent universities provide better pathway for suppliers to increase their income?

Competitiveness:

- How do you maintain the cultural concepts in this industry as the main characteristic for Iranian suppliers?

Relationships with:

Raw Material producers:

- How universities increase the skills of fiber production, colouring, and other raw material production (such as new materials or techniques)?
- To what degree universities provide knowledge for these suppliers about their ability to increase their income?

Manufacturers:

- How universities increase the skills of manufacturers in new methods of production, or new process of production to achieve more benefits from global markets?
- To what degree universities provide knowledge for these suppliers about their ability to increase their income?
- To what degree your graduated students enter to the global markets with new knowledge as a manufacturer?

INCC:

- What is the role of universities to assist governmental organization in this industry?
- Which training or teaching courses are related (or with cooperation with) INCC?

6- INCC representatives:

Very similar to universities and Cooperatives.

Appendix 2- Ethical consent form

Queensland University of Technology Brisbane Australia	**PARTICIPANT INFORMATION FOR QUT RESEARCH PROJECT** **– Interview –**

Coordination mechanism, governance types, and embeddedness in Global Value Chain

QUT Ethics Approval Number 1200000660

RESEARCH TEAM

Principal Researcher: Saeed Mohammadi, PhD student, QUT.

Principal supervisor: Prof. Rachel Parker.

Associate supervisor: Dr. Stephen Cox

QUT Business School
School of Management
Queensland University of Technology
Brisbane, Australia.

DESCRIPTION

This project is being undertaken as part of a PhD study for Saeed Mohammadi.

The purpose of this project is to identify opportunities of gaining more value for Iranian small and medium enterprises (SMEs) in the Persian rug industry in global markets.

You are invited to participate in this project because your role in the Persian rug industry is important. You have been selected because of your experience and knowledge of the Persian Rug industry.

PARTICIPATION

Your participation in this project is entirely voluntary. If you do agree to participate you can withdraw from the project without comment or penalty. If you withdraw, on request any identifiable information already obtained from you will be destroyed.

Your participation will involve an audio recorded interview at your place or other agreed location that will take approximately 45 minute of your time. Questions will include [It's related to each participants group].

EXPECTED BENEFITS

It is expected that this project will not benefit you directly. A summary of results will be sent to you at your request.

RISKS

There are no risks beyond normal day-to-day living associated with your participation in this project.

PRIVACY AND CONFIDENTIALITY

All comments and responses will be treated confidentially. The names of individual persons are not required in any of the responses.

Your recorded voice will be destroyed after the end of research, only the research team has access to the data.

Please note that non-identifiable data collected in this project may be used as comparative data in future projects or stored on an open access database for secondary analysis.

CONSENT TO PARTICIPATE

We would like to ask you to sign a written consent form (enclosed) to confirm your agreement to participate.

QUESTIONS / FURTHER INFORMATION ABOUT THE PROJECT

If have any questions or require further information please contact one of the research team members below.

Saeed – Mohammadi

QUT Business School
School of Management
Queensland University of Technology
Brisbane, Australia.

Tel:+6131384256

Email: saeed.mohammadi@student.qut.edu.au

CONCERNS / COMPLAINTS REGARDING THE CONDUCT OF THE PROJECT

QUT is committed to research integrity and the ethical conduct of research projects. However, if you do have any concerns or complaints about the ethical conduct of the project you may contact the QUT Research Ethics Unit on +61 7 3138 5123 or email ethicscontact@qut.edu.au. The QUT Research Ethics Unit is not connected with the research project and can facilitate a resolution to your concern in an impartial manner.

Thank you for helping with this research project. Please keep this sheet for your information.

Queensland University of Technology Brisbane Australia	**CONSENT FORM FOR QUT RESEARCH PROJECT** **– Interview –**
Coordination mechanism, governance types, and embeddedness in Global Value Chain **QUT Ethics Approval Number** 1200000660	

RESEARCH TEAM CONTACTS

Researcher: Saeed Mohammadi

Principal supervisor: Prof. Rachel Parker.

Associate supervisor: Dr. Stephen Cox

QUT Business School
School of Management
Queensland University of Technology
Brisbane, Australia.
Tel:+6131384256

Email: saeed.mohammadi@student.qut.edu.au

STATEMENT OF CONSENT

By signing below, you are indicating that you:

- Have read and understood the information document regarding this project.
- Have had any questions answered to your satisfaction.
- Understand that if you have any additional questions you can contact the research team.
- Understand that you are free to withdraw at any time, without comment or penalty.
- Understand that you can contact the Research Ethics Unit on [+61 7] 3138 5123 or email ethicscontact@qut.edu.au if you have concerns about the ethical conduct of the project.
- Understand that the project will include an audio recording.
- Understand that non-identifiable data collected in this project may be used as comparative data in future projects.
- Agree to participate in the project.

Name .....

Signature .....

Date .....

Please return this sheet to the investigator.

Appendix 3- Most famous Persian rug brands.

Main regions/ provinces	Brands	Dominant aspects in brands	Status in Global market of "Persian rug"
Isfahan	Isfahan	Famous producers/ rich culture/ architecture articles as the source of idea	Top level
	Kashan	The city of luxury textile / experienced city in fibre making	Top level
	Nain	Special designs/ deeply under geographical (desert) issues	Top level
Azarbaijan	Tabriz	Famous producers/ Industrial view to rug making/ men are weavers	Top level
	Heris	Unique style/ non-predesign products/ intact style of weaving	Top level
Qom	Qom	Silk style/ famous producers/ immigrants actors/ upgraded industry	Top level /upgraded
Kurdestan	Bijar	City brand/ global reputation/	Top level
	Senneh	City Brand	Second Level
Hamedan	Hamedan	City Brand	Third level
	Malayer	City Brand	Third level
Fars	Shiraz	City Brand	Top level/ "Gabbeh" products
Kerman	Kerman	City Brand	Second level
Mashad	Mashad	City Brand	Second level
South Khorasan	Moud	City Brand	Second Level
Markazi	Sarough	City Brand	Top level
	Tafresh	City Brand	Fourth Level
	Arak	City Brand	Third Level

Yazd	Yazd	City Brand	Fourth Level
Lorestan	Loribaf style	Tribe Brand	Second Level
	Yalameh tribe	Tribe Brand	Fourth Level
Tehran	Waramin	City Brand	Fourth Level
Bakhtiari Tribe	Bakhtiari	Tribe Brand	Third level
Ghashghaee Tribe	Ghashghaee	Tribe Brand	Third Level
Sistan-Baluchestan	Baluch style	Tribe Brand	Fourth Level